

a Periodic
Edited by Kenneth Newton
and Sonia Abrams for the
Advisory Centre for Education
A signpost to the avenues of
higher education, grants available
and to careers of all kinds

OPPORTUNITIES AFTER

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LEVEL

Opportunities After O-level

**A Guide for Students, Teachers, and Parents to
Education and Career Opportunities beyond G.C.E. O-level**

**Edited by Kenneth Newton and Sonia Abrams
for The Advisory Centre for Education**



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Contents

List of Charts and Tables	7
Preface	9
Acknowledgements	11
Abbreviations	13
Introduction	17
1 The Universities	21
2 Teacher Training	123
3 Colleges of Advanced Technology	169
4 Technical Colleges and Colleges of Commerce	179
5 Colleges of Art, Music, Dancing, and Drama; Theology; Agriculture; Architecture; and Adult Colleges	199
6 Correspondence Courses	217
7 How to Pay	229
8 Careers Index	249
Bibliography	299
Organizations and their Addresses	301
Universities and their Addresses	315
Index of Institutions	317
Index of Courses	319

Charts and Tables

<i>Chart A</i>	Number of Schoolchildren going to Jobs or to Institutions of Further and Higher Education	16
<i>Chart B</i>	Routes between Institutions of Further and Higher Education	20
<i>Table I</i>	Universities Student Population, etc.	35
<i>Table II</i>	University of London Faculties and Student Numbers	40
<i>Table III</i>	First Degree Courses Available at English and Welsh Universities and Course Requirements	42
<i>Table IV</i>	First Degree Courses at Oxford and Cambridge	100
<i>Table V</i>	First Degree Courses Available at the New Universities and Course Requirements	102
<i>Table VI</i>	Scottish and Northern Irish Universities. Subjects Available for First Degree Courses	108
<i>Table VII</i>	Scottish and Northern Irish Universities. Course Requirements	110
<i>Table VIII</i>	Unusual Full-Time First Degree Courses Not Included in Tables III-VII	115
<i>Chart C</i>	General Colleges of Education	132
<i>Table IX</i>	Four-Year General Degree Courses of London University	160
<i>Chart D</i>	First Degree and Degree-Equivalent Courses at Colleges of Advanced Technology	174
<i>Table X</i>	The Technical College 'Ladder'	182
<i>Table XI</i>	Types of Technical and Commercial Colleges	185
<i>Chart E</i>	Full-Time Diploma in Technology Courses Available at Technical Colleges	196
<i>Table XII</i>	Scholarship and Apprenticeship 'Sandwich' Courses	240

Preface

As the educational system increases in complexity it becomes harder and harder for parents and students to obtain the information they need. The Advisory Centre for Education (A.C.E.) has been answering over 6,000 educational problems each year from parents, students, and teachers; and so A.C.E. finally decided to compile this book which gathers together all the key facts needed by anyone who is wondering what opportunities lie the other side of G.C.E. O-level. We estimate that, if you wished to advise your child what to do after O-level, you would have to consult fifty-three books and pamphlets to get the information recorded in this Penguin.

A.C.E. have checked every fact as far as possible but much of this information is changing all the time, so we apologize for any changes which may have occurred by the time you obtain this book, and for any errors which have crept in. We suggest that wherever possible you check your information with the relevant authority. To help you to do this, names and addresses are given.

If you have any suggestions or corrections for improvements to future editions, please do write to A.C.E. Such two-way traffic helps us to tackle our job better, and, by the freer flow of information, modestly increases the potentialities of education.

Penguin books, penetrating so very many houses, have spread useful facts many times in the past. Through our own publication, *Where*, we can only hope to reach a much smaller public. For us, Penguins' cooperation is a real opportunity.

We hope this book helps you to find the right path through school or college for yourself, or for the boy or girl you want to advise.

Brian Jackson
Director
Advisory Centre for Education,
57 Russell Street,
Cambridge

Acknowledgements

A reference book of this kind is inevitably indebted to a very large number of experts. We are most grateful to over 300 people who took painstaking time to read through and comment on the drafts we sent them, and especially to the Registrars of the Universities and the Professors of Education, to the Principals of the Colleges of Education, Colleges of Advanced Technology, Technical Colleges, Colleges of Art and Colleges of Music and Drama, and to the Secretaries and Directors of the Regional Advisory Councils and Regional Colleges. This list is by no means complete, for special thanks are also due to many other people outside A.C.E. a list of whom would be far too long to publish, but who have been no less helpful in compiling the book.

In A.C.E. itself, this book has been written and designed by Gay Boehm, Donald Britton, Amanda Cornford, Kathleen Hartley, Merle Hastings, Tim Matthias, Gretchen Murray, Frank O'Gorman, Patricia Rose, and Deborah Steiner. Kenneth Newton and Sonia Abrams knitted it all together.

Abbreviations

General

A	Advanced
	Associate
C.A.T.	College of Advanced Technology
C.F.E.	College of Further Education
C. of E.	Church of England
C. T.	College of Technology
F.	Fellow
H	Higher
I.Q.	Intelligence Quotient
L.E.A.	Local Education Authority
L.S.E.	London School of Economics
N.I.	Northern Ireland
O	Ordinary
P.E.	Physical Education
R.C.	Roman Catholic
S	Scholarship
S.M.	Secondary Modern
Vol.	Voluntary

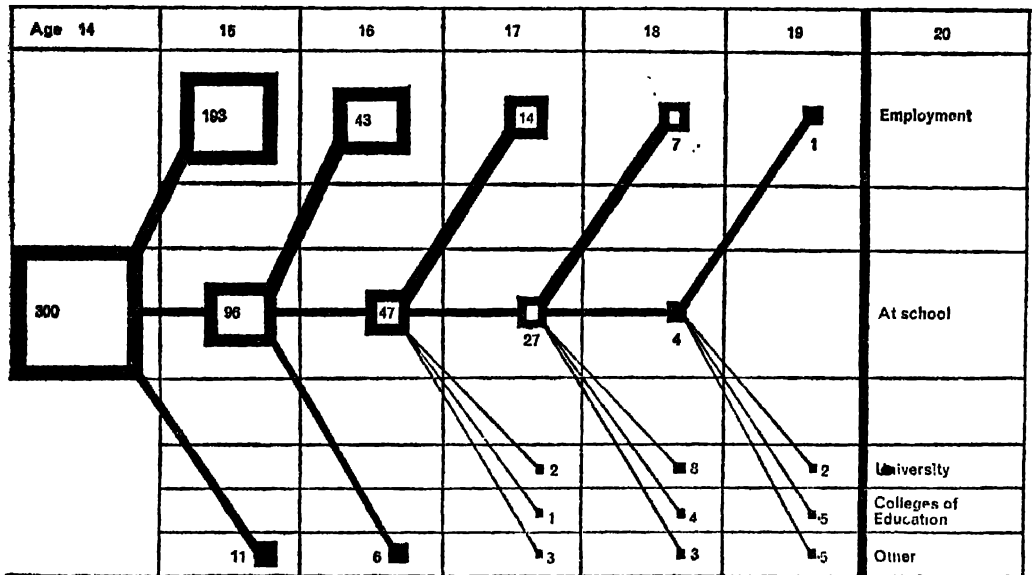
Certificates, Degrees, Diplomas, etc.

A.B.	Associate in Brewing
A.R.C.A.	Associate of the Royal College of Art
A.R.I.B.A.	Associate of the Royal Institute of British Architects
B.A.	Bachelor of Arts
B.Agr.	Bachelor of Agriculture
B.A.O.	Bachelor of Obstetrics
B.Arch.	Bachelor of Architecture
B.Ch.	Bachelor of Surgery
B.Com.	Bachelor of Commerce
B.D.	Bachelor of Divinity

B.D.S.	Bachelor of Dental Surgery
B.Eng.	Bachelor of Engineering
B.M.	Bachelor of Medicine (Oxford)
B.Met.	Bachelor of Metallurgy
B.Mus.	Bachelor of Music
B.S.	Bachelor of Surgery
B.Sc.	Bachelor of Science
B.V.M.S.	Bachelor of Veterinary Medicine and Surgery
B.V.Sc.	Bachelor of Veterinary Science
Cert.Des R.C.A.	Certificated Designer, Royal College of Art
C.G.C.C.	City and Guilds Craftsman's Certificate
C.G.O.C.	City and Guilds Operative's Certificate
Ch.B.	Bachelor of Surgery
Ch.D.	Doctor of Surgery
Des.R.C A.	Designer, Royal College of Art
D.D.	Doctor of Divinity
Dip.A D.	Diploma in Art and Design
Dip.Tech.	Diploma in Technology
D.Litt.	Doctor of Literature
G.B.S.M.	Graduate, Birmingham and Midland. School of Music
G.C.E.	General Certificate of Education
G.G.S.M.	Graduate, Guildhall School of Music
G.L.C.M.	Graduate, London College of Music
G.N.S.M.	Graduate, Northern School of Music
G.O.E.	General Ordination Examination
G.R.C M.	Graduate, Royal College of Music (Manchester)
G.R.S M.	Graduate, Royal School of Music
G.T.C.L.	Graduate, Trinity College (of Music), London
H.N.C.	Higher National Certificate
H.N.D.	Higher National Diploma
I.D.S.	Licentiate in Dental Surgery
LL.B.	Bachelor of Laws
LL.D.	Doctor of Laws
M.A.	Master of Arts
M.B.	Bachelor of Medicine
M.D.	Doctor of Medicine
M.O.H.	Medical Officer of Health
M.Sc.	Master of Science
N.B.D.	National Bakery Diploma

N.D.D.	National Diploma in Design
O.N.C.	Ordinary National Certificate
O.N.D.	Ordinary National Diploma
Ph.D.	Doctor of Philosophy
P.H.I.	Public Health Inspector
R.A.N.A.	Registered Animal Nursing Auxiliary
R.M.A.	Registered Medical Auxiliary
R.S.A.	Registered Statistical Assistant
S.C.E.	Scottish Certificate of Education
S.R.N.	State Registered Nurse

Chart A. Number of Schoolchildren going to Jobs or to Institutions of Further and Higher Education



Introduction

The Purpose of the Book

This book is written for all those who are planning a career and who want information about the available educational and vocational courses. It is mainly for those at school between the ages of fourteen and nineteen, but it will be useful to older people who want to continue with some form of training. Such is the bewildering complexity of the British educational system that the book will also be useful to parents who want to advise their children on planning a career. Teachers and youth leaders of all kinds, who are so often asked for advice, will also find the book a valuable source of information.

The book deals with courses of at least O-level standard, or its equivalent, but you will find the book of value if you have not yet taken your O-levels, since by reading it you will be able to find out what kind of educational requirements are necessary for the career you have in mind, and how you can best train for it.

What the Book Contains

There is a separate chapter for each of the following: Universities; Teacher Training Colleges; Colleges of Advanced Technology; Technical Colleges; Colleges of Agriculture, Architecture, Art, Dancing, Drama, Music, Theology, and Adult Colleges; Correspondence Colleges.

Each chapter deals with the advantages and disadvantages of the particular kinds of courses and with the choice, range, and combination of subjects that may be studied within them. The minimum educational qualifications for entry to a course are very important and these are given in as much detail as possible. However, many institutions make provisions for admitting people who have not qualified in the normal way and you will find details of such special entrance facilities in each chapter. You will also be able to find out how, when, and where to apply for a course and the minimum age of admission.

Introduction

All the information about the financial aspects of the courses is collected together under the appropriate heading in Chapter 7, p. 229. This chapter describes the various grants and scholarships which are available to students following particular courses, their value, and how you can apply for them.

Since there is often strong competition for places at institutions of further education, the book gives an estimate of the number of applicants as against the number of places. By reading the chapters you can discover how long the courses last and the way in which you will learn and be taught. Lastly, there is a description of the kind of life that you may expect to lead while pursuing the course, and the social and cultural aspects of the various types of institution.

However, a single book could not possibly cover all the detailed information that you may require and so each chapter ends with a short list of the most useful books to which you may refer for further information.

How to Use the Book

If you know what kind of course you want to follow and the kind of institution that offers it, you can turn straight away to the relevant chapter. For example, if you want to teach chemistry at school, the chapters about Universities, Colleges of Education, and C.A.T.s will provide the information you require about where you can study chemistry, and the qualifications you need before you can enter for the course. If, on the other hand, you know what kind of career you want but do not know how and where you can train for it you should turn to the Careers Index. This alphabetically-ordered index tells you how you can train for a career, the length of the course, and its educational requirements, as well as the qualifications that it leads to. The Careers Index also incorporates details of apprenticeship schemes. If, for example, you want to become an engineer, you will find under the **ENGINEERING** section of the Careers Index how and where you can prepare to become fully qualified in any one of the sixteen major branches of engineering. Having decided on one of the sixteen, you can then turn to the appropriate chapter which deals with that form of training.

However, there are often a number of different ways of preparing for a career, and so you might want to look at two or more of the chapters after referring to the Index. Someone who wants to be a

teacher would be interested in the chapters on Universities, Colleges of Education, and C.A.T.s. Someone else who wants to become a technician of some sort should look at the chapters on Universities, C.A.T.s, and Technical Colleges, as well as the special section in the Careers Index, which will tell him the various ways in which he can train to become a fully qualified technician.

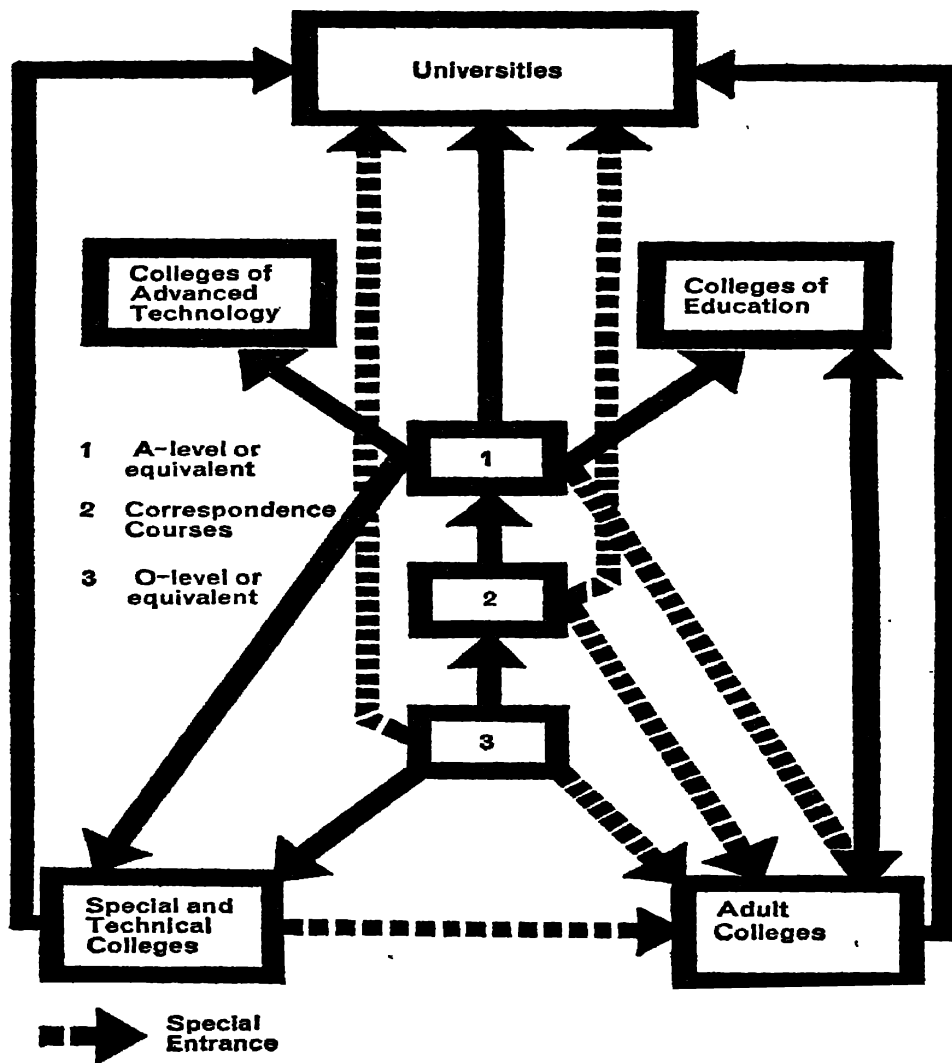
The diagram at the beginning of this Introduction shows the number of children who go to the various separate institutions of further and higher education. If you imagine a very large school with 300 fourteen-year-old girls and boys, you can see from the diagram that 193 of them will start straight away in their jobs when they leave school at fifteen, while 96 will continue with their studies at school and another 11 will leave to go to a technical college. By the time the children are eighteen, only 4 of the original 300 are still at school and, of these, 2 will go to a university, 1 will go into a job, and the remaining 1 will go to a College of Education or to a C.A.T.

The diagram at the end of this Introduction shows the various routes between educational institutions. With a certain number of A-level passes you would be qualified to go to a university, a College of Education, a C.A.T., a Technical College, a Special College, or an Adult College. But if you left school before taking A-levels, you could start in an apprenticeship scheme or take a course at a Technical College or Special College. If, however, you decided that you would like to take a degree course or its equivalent, you could go to a university by way of an Adult College, or try to enter a university by way of the special entrance facilities. Alternatively, you could take an A-level correspondence course and so gain the necessary qualifications for entry to a course of higher education.

The addresses of all the organizations mentioned in the text will be found in the Address List on p. 301, and details on all the books recommended are given in the Bibliography on p. 299.

We hope that you will find the book useful and that it will be of value to you in deciding what career you want and how you can best prepare for it.

Chart B. Routes between Institutions of Further and Higher Education



i The Universities

Oxford and Cambridge; Civic Universities; The New Universities

Courses: Honours and Pass Courses; Broad and Deep Courses; Scottish Courses; The Oxford and Cambridge System; Courses at the New Universities; Change of Course; Medical Courses; Diploma and Certificate in Education

Teaching Methods

Getting to University: Age; Extraordinary Entrance; How to Apply; Competition

Choosing your University: The Content and Choice of Subjects in the Course; The Reputation of the University; The Size of the University; The Size of the Library; The Environment of the University; Accommodation

General Information: Residence; Table I. Universities: Student Population, etc.; Union Life; The National Union of Students; The Freshers' Conference; Student Welfare; Books Recommended

English and Welsh Universities: Course Requirements: Approved Subjects; Oxford and Cambridge; University of London; Table II. University of London: Faculties and Student Numbers; External Students; General Notes on Universities in Table III; Books Recommended; Table III. First Degree Courses Available at English and Welsh Universities and Course Requirements; Table IV. First Degree Courses at Oxford and Cambridge; Table V. First Degree Courses Available at the New Universities of East Anglia, Essex, Keele, Kent, Lancaster, Sussex, Warwick, and York, and Course Requirements

Tables VI and VII: Scottish and Northern Irish Universities: Subjects Available for First Degree Courses, and Course Requirements

Table VIII: Unusual Full-Time First Degree Courses not Included in Tables III-VII

Many of the educational courses described in this book will train you for a specific job or career. As vocational courses they may be as good as a university training but, while the universities do offer vocational training, they also offer something more. Being a university student will involve you in a way of life. You may be studying mathematics, or history, or engineering, but you will be able to mix with students of chemistry and classics, modern languages, and music. You will have the opportunity to broaden the scope of your interests and to evolve fresh intellectual perspectives.

This is a time of great upheaval for British universities. The Robbins Report suggests developments which will affect their academic and residential shape, and in future the pace of change will quicken. Therefore, you need to find out all you can about the universities and the courses they offer, and you should start thinking about the problem of university entrance at least two years before you hope to begin your course.

No two universities are exactly alike, and all attempts to classify them are open to objections, but they can conveniently be grouped as follows:

Oxford and Cambridge

Unlike most other universities, Oxford and Cambridge are organized on a collegiate basis. Each student is a member of a college and spends at least one year in residence there. As well as the lectures and laboratories provided by the university, the colleges themselves provide tuition of a less formal kind in supervisions and tutorials.

Oxford and Cambridge join the **Universities Central Council on Admissions (U.C.C.A)** in but the details of their entrance procedure have not yet been decided. Final details will be published in the July U.C.C.A. Handbook which you can obtain either from your school or from the U.C.C.A.'s offices. However, appli-

Opportunities After O-level

cations for admission in October 1966 should be returned by not later than 30 September 1965 and further inquiries about the admissions procedure should be made (for Oxford) to The Oxford Colleges Admissions Office, 58 Banbury Road, Oxford, and (for Cambridge) to the Admissions Tutor of your first-preference college.

To enter Oxford or Cambridge you must satisfy the minimum university-entrance requirements and also be accepted by a college, which entails passing its scholarship or entrance examination. Most candidates stay on for a third year in the Sixth form to prepare for these examinations, which are similar in many respects to the G.C.E. Scholarship levels.

Civic Universities

These are also known as 'Provincial' or 'Redbrick' universities. Unlike Oxford and Cambridge, they are organized by faculties, each of which corresponds to a group of allied subjects. Although Oxford and Cambridge inevitably attract a large number of the ablest scholars and teachers, most of the civic universities also have gifted teachers, distinguished scholars, and excellent academic traditions. Some of them offer courses which are not available at Oxford and Cambridge (such as Combined Honours in Sociology and Psychology), and in other subjects they may be preferable.

London, which is by far the largest of these universities, is a federation of institutions. Some are called 'colleges', and the biggest of them are equivalent to provincial universities. Other large cities are also the homes of university establishments of considerable size. These include Belfast, Birmingham, Bristol, Glasgow, Edinburgh, Leeds, Liverpool, Manchester, Newcastle, and Sheffield. The theatres, concerts, libraries, and other social and cultural facilities offered by these universities and their cities may be better than those of the smaller civic universities like Aberdeen, Durham, Exeter, Hull, Leicester, Nottingham, Reading, St Andrews, and Southampton. Although the University of Wales is second only to London in the number of students, its constituent colleges (Aberystwyth, Bangor, Cardiff, and Swansea) are more like the smaller civic universities. There seems to be greater community cohesion in some of these smaller civic universities, and better opportunities for staff-student contacts.

The New Universities

These are: Keele, which was founded as the University College of North Staffordshire in 1949 and received university status in 1962; Sussex (Brighton), which accepted its first students in 1961; York and East Anglia (Norwich), which opened in 1963; Essex (Colchester) and Lancaster, which opened in 1964; and Warwick and Kent (Canterbury), which will open in 1965. These universities intend to expand rapidly, but at first they will accept a limited number of undergraduates and provide a restricted range of courses. All of them plan to group their buildings on one site or on several closely related sites, and they hope eventually to have a high proportion of resident students. Keele is completely residential. York will follow the Oxford and Cambridge pattern of collegiate education and residence, and Lancaster will develop a non-residential collegiate system of college clubs, while Kent will be collegiate in residence only. The courses offered in the new universities differ from those offered elsewhere, and there are other important new features which will be explained later in this chapter.

Courses

It is as difficult to classify universities as it is to classify the courses that they offer. There is a great deal of variation in the courses available at different universities, and even in different faculties of the same university.

Honours and Pass Courses

A distinction may be made between honours and pass (or ordinary) courses. Most university courses lead to honours degrees. In some cases pass and honours candidates follow the same course for the first year or for the first and second years. In other cases they may be separated immediately on entry to the faculty or department. Furthermore, a pass-degree candidate may be awarded an honours degree if he does well enough in his examinations, and vice versa; and a student can be transferred from one type of course to the other.

Broad and Deep Courses

A second distinction lies in the number of subjects studied. The first type of course deals with one main subject and its ancillary subjects in related fields. At one university you could, for example,

Opportunities After O-level

study Philosophy as the main subject and, in the first year, choose any one of a long list of Arts subjects, or Psychology, as a subsidiary subject. In the second year you would continue with Philosophy and choose another Arts subject, or Psychology, as your subsidiary. In the third year you would study only Philosophy, but would still have the choice of one or two special papers from a list including Logic, Moral, Social, or Political Philosophy, Philosophy of Religion, and Philosophy of Science. The range of choice of subsidiary subjects varies according to the particular university, faculty, or department.

A second type of course – the combined, joint, or double honours – covers two main subjects at the same level. Entry to courses which combine rather different subjects may demand special G.C.E. requirements. For instance, you might be required to have A-level Mathematics if you wanted to combine Philosophy and Psychology, while a combination of Philosophy and History might not require Mathematics. You will only rarely be able to cover more than two subjects at the same level, although at Exeter University, for example, you could select three of the following subjects: Economics, French, English, Geography, German, Greek, History, Latin, Philosophy, Russian, and Spanish. In almost all universities the range of possible combinations is very wide.

Scottish Courses

The Scottish Ordinary M.A. and Ordinary B.Sc. courses, which take three years, are broader than the first degree courses in England and Wales which are described above. For both ordinary and honours degrees you would be accepted by a faculty rather than a department. For an honours degree you would have to cover a range of subjects, following the same courses as people taking ordinary degrees, in the first two years before going on to specialize for the honours degree, which takes four years in all. In a few rare and exceptional cases a student may be able to take the honours course in three years, provided that he has certain A-levels and has also passed the examinations set by the university. The broader and less specialized nature of the Scottish courses means that they are of approximately the same level as the three-year degree in England and Wales.

The Oxford and Cambridge System

At Oxford you would sit for a B.A. degree (the only first degree awarded) and take two examinations (see also Table IV). For the first

(Preliminary) examination you can select one of about twenty subjects, or a group of subjects, and for the second (Final Honours) examination you can select one of some thirty-seven subjects, or a group of subjects. Normally, the subject offered for the second examination is related to that offered for the first, although having passed any subject in the first examination you are entitled to offer any subject in the second. The first examination is normally taken during the first year, and the second at the end of the third year, but there are some courses which require four years in all.

The Cambridge system (*see also* Table IV) revolves round the Tripos, which is a specialized examination in a particular subject. Triposes are usually divided into two parts, and it is customary to take Part I of the Tripos at the end of the first or the second year, and Part II at the end of the third year. Part II can sometimes be taken in a different subject, and many combinations are thus possible, especially in natural sciences. Again, there are some courses which take four years.

Courses at the New Universities

These are based not on faculties or departments but on schools or boards, which combine a broad range of related subjects. Even when you have begun to specialize, in the second or third year, you will be able to choose a number of subjects in one school or in a number of different schools. Sussex has schools in English Studies, American Studies, European Studies, Social Studies, and Physical Sciences. Schools of African and Asian Studies, Educational Studies, Biological Sciences, and Applied Sciences are planned and will open in the next few years. You would take a number of major subjects in one of the schools, together with some other subjects which are perhaps common to all the members of that school. Kent opens in 1965 with schools of Social Studies, Humanities, and Physical Sciences. At Norwich the process of specialization is something which develops gradually throughout the second and third years. At Keele (the first of the new universities), where all honours degrees are combined, all students do the same first-year course. Students at the Colleges of the University of Wales also take a broad first-year course and do not specialize until their second year.

The curricula developing in the new universities, and in some of the older ones as well, aim to avoid specialization and a narrow inflexible outlook. By drawing from a common foundation of

Opportunities After O-level

knowledge in various fields of learning, it is hoped to encourage thoughtful and tolerant minds.

Change of Course

Some students want to change their course after studying for a year or so. Such a change is made somewhat easier by the flexibility of the Oxford and Cambridge system and the broad courses of Scotland, Wales, and the new universities. A change is, of course, more difficult in some of the other universities, where separate departments have special entrance requirements. For instance, it would be idle to hope to change from Philosophy to Spanish if your A-level language results are not good. But it is possible to change from a pass to an honours degree course if you do well in your preliminary examinations, and vice versa. In some cases, transfers between broad and deep courses are allowed. In Scotland you can change your university at the end of the first year with little difficulty, although at a later stage not without considerable and in most cases insuperable difficulties.

Medical Courses

At Oxford, medical students take the first qualifying examination (First B.M.) after three years. The normal Oxford course is five terms to the First B.M. and a further four terms for the B.A. degree (usually in Animal Physiology) and a further three and a quarter years to the Second B.M. No one can claim exemption from the Oxford First B.M. except on the basis of a corresponding examination of another university. Cambridge has a First M.B. but not a Second M.B. and the qualifying examination is in Anatomy and Physiology. While Oxford has its own pre-clinical medical school, Cambridge has a postgraduate school (*see also* Table IV). At other universities the course lasts for six years, but exemption from the first year can be obtained in most universities if you have A-levels in Chemistry, Physics, and either Botany, Zoology, or Biology (the exact combination varies between the medical schools). You should remember that, after passing the qualifying examination, you are required to spend twelve months as a resident house officer in an approved hospital before you can become a fully registered doctor.

Diploma and Certificate in Education

More and more university students are continuing their studies for an extra year in order to take the Diploma or Certificate in Education, which makes them fully qualified teachers. These courses are

taught in the University Departments of Education, or, in London, at the Institute of Education. Students have to do one term's practical teaching or its equivalent in a school as part of the course. Applications to the University Departments of Education should be made to the **Graduate Teachers Training Registry**. At Keele the Diploma is taken concurrently with the last three years of the four-year degree course, so that intending teachers do not have to spend an additional postgraduate year before they become qualified teachers.

Teaching Methods

How will you be taught at university? The formal lecture is the most widespread method. Attendance at lectures is often technically compulsory, but this rule is not always enforced. Most students can expect to attend between eight and twenty lectures a week, or more. In addition to lectures, scientists will have about ten to twenty hours a week of practical work in the laboratory. Personal tuition is given in supervisions or tutorials, which are small weekly or fortnightly meetings between a member of the teaching staff and one or two students. The seminar is a larger meeting between staff and students. Essays written by the students are discussed in the tutorial or seminar, and they thus provide an excellent opportunity for close staff-student contacts.

You will attend the university for three terms a year, each term being about ten weeks long. They start in the first week in October, the second week in January, and the second or third week of April. At Oxford and Cambridge the term is eight weeks long. Examinations normally (but not invariably) take place in the second half of the third term. You will be expected to continue your studies during the vacations. At Norwich two weeks of each term are set aside for private reading and tutorials, and the marks obtained in the course work during the term will comprise a significant portion of the total marks considered at the time of your final assessment.

A student is rarely excluded from classes on the basis of one examination failure, and he is nearly always given an opportunity to redeem a failure if his general work has been satisfactory.

Getting to University

Age

If you are old enough to have taken A-level you will almost

Opportunities After O-level

certainly be old enough to go to university, but you should check with Table 1 to make sure.

Extraordinary Entrance

Such means of entrance is for those few who slip through the educational net and who decide later that they regret not having taken A-levels. It is difficult to enter a university in this way, but it can be done and is done each year.

In some cases mature entrants (usually over twenty-five) without the usual qualifications will also be admitted. Sussex intends to accept a very few candidates without the formal entrance requirements although certain O-levels are required. Some universities regard professional qualifications or attendance at adult classes as essential for the mature applicant, while others set their own examination. Some demand evidence of previous serious study and others evidence that circumstances have prevented the candidate from entering a university in the more usual way. Further information can be obtained from the **National Institute of Adult Education**.

Birkbeck College, University of London, provides evening and part-time day degree classes for men and women in full-time occupations. For information about the admissions procedure, write to the college. Queen's University, Belfast, provides similar facilities in the Faculty of Economics. You can also prepare for a degree examination by attending evening classes at Belfast and at Manchester. The London School of Economics provides for part-time students in economics and law.

How to Apply

You should begin to think seriously about your application *at least one year before you plan to start your studies*. Before deciding which universities to apply for, talk to your teachers and to friends and relatives who have attended a university. You would also be well advised to spend some time looking at the university prospectuses and calendars, for these contain much detailed and useful information.

Applications to the universities are dealt with by the 'Clearing-house System' or, more correctly, the **Universities Central Council on Admissions**. The Council does not deal with the following: application to the Medical and Dental Schools of London and to Queen's University, Belfast (you should apply direct to these institutions); candidates who live in Scotland and who apply to one

or more of the Scottish universities. If, however, you apply for one or more of the English or Welsh universities as well, your applications are dealt with by the Council, as are all applications to Edinburgh University.

An application form, and a handbook describing the system of applications, can be obtained from your school or direct from the Council. The application must be filled in and returned to the Council as soon as possible after 1 September and in any case before 15 December. On the form you will be asked to name up to six choices of university, college, or course, in order of preference. When the form has been completed, it should be handed to your headmaster or headmistress, who will write a confidential report about you before returning it to the Council. Since considerable pressure develops in the Council's offices during November and December, forms received before then are less likely to be delayed. The weeks before Christmas are a very busy time for your school and for the Council, and there is no reason why the application should be left to the last few days.

The council will forward copies of your form to all the six universities that you have named, and they will then reply to your application through the Council. You will hear from your first three preferences before the end of March and from the other three by the end of May. The offer of a university place will often be conditional on your attaining a certain standard in the A-level examinations, although you may still be accepted by your second-choice university, and in some cases by your first choice, if you do not attain these standards. You will be able to hold two offers of university places until your A-level results are published.

Competition

Competition for places is extremely keen (in most cases). In 1962, twenty-seven per cent (8,650) of the applicants with the minimum general and course requirements were unable to find a place, but some universities are more sought after than others, and the competition for places in different faculties varies considerably. By and large it is keenest in Arts subjects and in medicine, less so in Science, and still less in Technology. Women will find it more difficult than men to secure a place, since there are fewer places for them in some subjects (e.g. Medicine), and since more of them tend to apply for Arts subjects. The proportion of public-school boys is higher at Oxford and Cambridge than elsewhere, but both these universities

Opportunities After O-level

are encouraging more applications from grammar-school boys, and in fact those who do apply have a slightly *better* chance on average of gaining admission to 'Oxbridge' than public-school applicants. The new universities have received much well-deserved publicity and as a result have many more applications than places. Yet for some time the older universities will have better teaching facilities and bigger libraries.

Many school-leavers apply for courses in the subjects which happened to be their best or favourite at school, but you might consider the possibility of taking subjects such as engineering or economics which are seldom taught at school. *Where* has published a supplement, 'Changing Tracks', which gives full descriptions of ten of these non-school subjects, with details of where you can study them and the careers they lead to. It would be well to remember that competition is sometimes hardest in those departments which teach 'normal' school subjects such as French, History, English, Mathematics.

As a result of this shortage of places, some candidates who possess the minimum university and course requirements will be disappointed. Yet you should not forget that universities are only part of the educational system and that other institutions are now receiving the recognition that their achievements deserve.

But despite the hazards of competition and the complexities of choice it is worth making a very great effort to obtain a university education, for in no other institutions are so many other people, studying so many different subjects, drawn into a community which evolves its own unique culture.

Choosing Your University

Choosing a university is very much a personal decision. No two universities have identical qualities or disadvantages, and in the end it is a matter of weighing up the pros and cons in the light of your own preferences. First select the universities that offer the course that you want to study (*see* Tables III–VIII). Then make sure that you have the required or preferred G.C.E. qualifications. Both the university and their faculties impose their separate requirements, which are known respectively as general and faculty or course requirements. The latter are always more stringent than the matriculation requirements. Both Oxford and Cambridge set university-entrance requirements, but neither has special course requirements.

*Having eliminated the universities which do not offer the required course, and the faculties for which you are not qualified to apply, you should be left with a list of between five and twenty universities, depending on the subject you want to study and your own G.C.E. qualifications. You can then write to the Registrars of these universities (whose addresses are on p. 315) for the prospectuses. By reading these, or the university calendars, which are obtainable at most large public libraries, you can then select your list of six universities for the U.C.C.A. application form. The following criteria for selection will be of some help, although you may well have some of your own to add:

The Content and Choice of Subjects in the Course

You might be particularly interested in a special field of study within a general subject; for instance, there could be a course for the student who wants to take an English degree with special emphasis on modern English literature.

The Reputation of the University

In the long run the academic status of the faculty or department may be as important as that of the university as a whole. Reputations are very difficult to gauge in some cases, and in others they fluctuate quite considerably over a period of years, but you can gain some idea from talking to your teachers or to friends who have attended a university.

The Size of the University

The larger ones generally provide a wider range of subjects and a larger number of student activities, but the smaller ones often have a better community spirit and closer contact between the staff and students.

The Size of the Library

This is very important, since you can often spend frustrating hours waiting for a book which you want urgently but which is out on loan. The large university cities frequently have very good public libraries.

The Environment of the University

Those in large cities offer a better selection of concerts, theatres, cinemas, etc., but the smaller ones tend to be situated in pleasanter surroundings. You should also consider the advantages to be gained by going to a university outside your home town or locality.

Opportunities After O-level

Accommodation

Some universities have more places in halls of residence (*see* Table I, p. 35), and others are so large that some of the approved lodgings may be uncomfortable and a considerable distance from the university buildings.

You must then put down six universities in order of preference on the application form. If you are a very strong candidate you can give as your first choice the university where you most want to go. If, on the other hand, you are likely to come in the borderline group, it might be advisable to choose a university where the demand for places is less intense.

General Information

What is said here about residence, Union life, the Freshers' Conference, and student welfare, does not generally apply to Oxford and Cambridge. The 'Oxbridge' colleges provide for the student in a somewhat different way, for the Union is a debating society with some additional facilities rather than a major students' centre, and the social life of each college has an important role to play.

Residence

About half the total number of undergraduates live in lodgings, slightly under a quarter in their own homes, and the rest in halls of residence or colleges. Some students prefer to live in lodgings, although many find them an inadequate substitute for halls. Travelling-time may be an important problem in some of the larger cities, since the number of lodgings within a reasonable distance of the university buildings is strictly limited. Because of this shortage, some of these lodgings are overcrowded, and some provide inferior food and accommodation. However, each university has a Lodgings Officer, who will find you approved accommodation. Other students prefer to live in their own flats, and in most cases these must also be approved by the Lodgings Officer. The university may set an age-limit for those permitted to live in flats. Some universities are now themselves providing flats for students.

Many people believe that the problem of housing students is best solved by residential accommodation. A hall of residence is in charge of a resident Warden, who is nearly always a member of the university teaching staff. The students live and eat in the hall, and run their own affairs through a student committee, but they are also subject to the

few rules, such as visiting hours, laid down by the Warden or by the university. The standard of hall accommodation is usually better than that found in the majority of lodgings, and there are the additional advantages of hall amenities such as a reading-room, a small library, and a common room, with a communal subscription to magazines, newspapers, and gramophone records. The fact that there are many students in hall increases the chances of meeting people with like sympathies and interests while at the same time it encourages the exchange of ideas. Table I shows the percentage of students who live in the halls or colleges of each university. Most universities try to offer students at least one year in hall or college, and the new universities hope that about one half of their intake will live either in hall or college.

Table I. Universities: Student Population, etc.

University	Student Population 1964/5	Percentage in College or Hall 1964/5	Volumes in Library 1964	Minimum Age of Admission on 1 October
Birmingham ..	4,950	18	600,000	17
Bristol	4,250	29	270,000	17 yrs 9 mths
Cambridge ..	9,079	58	2,250,000	18 (unofficially)
Durham	1,895	69	230,000	18
East Anglia ..	400	—	40,000	17
Essex	100	—	being built	—
Exeter	1,825	58	135,000	17
Hull	2,100	34	250,000	17
Keele	1,050	100	200,000	17
Kent		Opens in 1965		
Lancaster ..	280	—	25,000	17
Leeds	6,475	33	728,000	17
Leicester ..	1,875	58	150,000	17
Liverpool ..	5,500	21	970,000	16 yrs 9 mths
London	23,000	30	900,000 plus College Libraries	17

Opportunities After O-level

Table I (Continued)

University	Student Population 1964/5	Percentage in College or Hall 1964/5	Volumes in Library 1964	Minimum Age of Admission on 1 October
Manchester ..	8,300	20	750,000	16 (men) 17 (women)
Newcastle	4,250	30	250,000	18
Nottingham	3,100	60	200,000	17
Oxford	9,000	54	2,993,000	no minimum
Reading	1,850	62	170,000	18
Sheffield	4,000	26	302,000	17
Southampton ..	2,092	46	150,000	17
Sussex	1,400	15	100,000	17
Warwick		Opens in 1965		
York	450	—	30,000	17
<i>Northern Ireland</i>				
Belfast	4,500	—	320,000	17*
Londonderry ..	300	40	—	17
<i>Scotland</i>				
Aberdeen	3,000	5	360,000	no minimum
Edinburgh	7,500	15	800,000	„
Glasgow	6,430	6	500,000	„
St Andrews	3,600	40	600,000	„
Strathclyde ..	4,100	3	60,000	17
<i>Wales</i>				
Aberystwyth ..	1,882	48	162,000	17
Bangor	1,880	36	268,000	17
Cardiff	2,500	19	188,000	17
Lampeter	220	81	50,000	17
Swansea	2,100	29	180,000	17
School of Medicine	165	57	16,000	17

* On 15 October.

For addresses see p. 315.

Union Life

Although each hall organizes its own cultural and social activities, your life as an undergraduate will centre upon the activities of the Union. Students elect their own officers and representatives, who run the Union organizations and the facilities of the Union buildings. The facilities will probably include a dining-hall, a coffee-bar, a dance-hall, a debating-room, a reading-room, a bookshop, a lounge, a bar, and in some cases a gymnasium and a television-room. There will be a whole series of sports clubs, which compete with other clubs and universities. The Union also helps, through its subscriptions, to finance the many student societies which cater for almost every variety of opinion and interest. The societies of one large university include an Anarchist Group and Archaeological, Sociological, Literary, Drama, and Cinema Societies. The political and religious societies are usually very active, with membership figures of up to several hundred. Departmental societies provide lectures of general interest, for members of the department and for interested outsiders. Membership of these societies costs only a few shillings a year. Some of the larger societies publish their own magazines or broad-sheets, and the Union will probably publish a newspaper which represents the view of the students on university affairs and will give you valuable experience if you want to become a journalist.

The National Union of Students

When you join the student Union you will automatically become a member of the N.U.S. (with the exception of some 'Oxbridge' colleges, which are not yet affiliated to the national student body). In addition to providing information about vacation jobs, by means of a weekly *Vacation Work Bulletin*, the N.U.S. also arranges cheap travelling services both at home and abroad, and negotiates for student discounts at a large range of shops. It also arranges a very large number of excellent cultural and sporting activities, and has done much to make the opinions of students known at the national and international level.

The Freshers' Conference

You will be introduced to the university and Union affairs at what is known as the Freshers' Conference. For the first day or two you will be shown round the university by the older students, and will be persuaded to join some of the many societies. There will also be

Opportunities After O-level

parties, coffee evenings, and dances, to encourage you to mingle and acquaint yourself with other students.

Student Welfare

Health services are provided by the Health Officer, and treatment comes under the National Health Scheme. A medical examination and X-ray are sometimes compulsory on first entering the university. Also it is quite probable that you will be bombarded by various health and other insurance circulars, and it is as well to obtain some special advice before committing yourself to any of them. You would also be well advised to open a bank account, since your grant will probably be paid by cheque. Lastly, a moral tutor, who is a member of the teaching staff, will be assigned to you, and he or she will help you with any difficulties that crop up during your undergraduate career.

Books Recommended

Commonwealth Universities Year Book

University and College Entrance: The Basic Facts

Where, Supplement 2, 'Changing Tracks: Non-School Subjects at the Universities'

Which University?

For each separate university, see their *Prospectuses* (available on request from the Registrars) and *Calendars* (available at most good public libraries).

For publishers and prices, see BIBLIOGRAPHY, p. 299.

English and Welsh Universities: Course Requirements

Table III covers courses available and course requirements at all universities except Oxford and Cambridge (*see* Table IV); the new universities (*see* Table V); and Scottish and Northern Irish universities (*see* Tables VI and VII). It indicates the numbers and names of subjects which candidates should normally have passed. Only in exceptional cases (and never at the University of London) will applications be considered from candidates who satisfy the general requirements but do not fully satisfy the course requirements. Because of the competition for university places, possession of the minimum course requirements does not in itself guarantee admission. The general and course requirements must be satisfied, but

most universities can select students with better qualifications than these minimum requirements.

Approved Subjects

Not all subjects taken at G.C.E. (e.g. some technical subjects) are acceptable for university entrance purposes, all the universities publish lists of G.C.E. subjects that are approved. All universities will consider applicants with qualifications equivalent to G.C.E.

Oxford and Cambridge

There are no course requirements at Cambridge or Oxford, but most candidates will be required to take an entrance examination, and it is advisable to consult the prospective college on what A-level passes are desirable.

University of London

The University is composed of several schools and colleges (see Table II), including thirteen medical schools at London hospitals, and also several specialist institutes which are mainly concerned with post-graduate study. We include only those mainly concerned with undergraduates.

Candidates for entry must satisfy the university matriculation and course requirements, but otherwise admission is the concern of the individual schools.

External Students

External-degree students study outside a university, and London is their major examining body, although external degrees in Music can be taken at Durham University. They are designed mainly for those who, because they are working or disabled, cannot attend a university as internal students, for married women and other people who can only continue to study at home; or for full-time students who could not get into a university. In 1963 there were 16,500 external students registered at London for first degrees, and it is expected that this number will increase rapidly in the next few years. Many attend full-time or part-time courses at Colleges of Technology or Colleges of Commerce, Colleges of Further Education, and in some cases Theological Colleges and Colleges of Education, but others prepare for their examinations privately, sometimes with help from the **University of London External Advisory Service**. The matriculation requirements for internal students at London also

Table II. University of London: Faculties and Student Numbers

	Number of Students in Faculty by Schools						Total
	Arts	Social Studies, Economics	Engineering	Law	Medicine	Science	
<i>1. Non-Medical Schools</i>							
Bedford College	380	1,053
Birkbeck College	767	1,541
Imperial College	1,223	2,725
King's College	284	646	2,386
Londrop School of Economics	149	2,778	2,778
Queen Elizabeth College	407	407
Queen Mary College	557	1,341
Royal Holloway College	208	390
Royal Veterinary College	23	359
School of Oriental Studies	336	..	450
School of Pharmacy	48	..	190
University College	178	1,021	4,043
Westfield College	190	460
Wye College, Kent (Agriculture)	238	238

2. Medical Schools Charing Cross Hospital, Guy's Hospital, King's College Hospital, the London Hospital, Middlesex Hospital, Royal Dental Hospital, Royal Free Hospital, St Bartholomew's Hospital, St George's Hospital, St Mary's Hospital, St Thomas's Hospital, University College Hospital, Westminster Hospital.

The numbers of students at these medical schools range from 169 at Westminster to 1,126 at Guy's. In all, the hospitals account for nearly 5,000 students, or (including those in other schools in the Faculty of Medicine) about a quarter of all students.

apply to the external students, although a degree course taken externally may last for five years or more depending on the quality of the student's work.

General Notes on Universities in Table III

DURHAM. Faculty of Science: Candidates for Honours in a three-year course must pass the second qualifying examination for Honours at the end of the first-year course. Candidates not satisfying the course requirements may be considered for entry to a two-year qualifying course (a four-year course in all).

LEICESTER. Most of the requirements are given in terms of three A-levels, but good candidates with only two A-levels will be considered exceptionally.

LONDON (BIRKBECK COLLEGE). B.Sc. (Special) Mathematics, B.A. (Honours) Mathematics, B.Sc. (Special) Chemistry are full-time (admission through U.C.C.A.). Only part-time (evening) students are admitted to other courses (apply direct to the college). The College may be able to offer full-time courses in a limited range of other subjects, e.g. Botany, Geography, Psychology, Physics. For further information about these courses, apply direct to the Registrar of the College.

NEWCASTLE-UPON-TYNE. Pure Science: a fourth year is necessary for some Honours students who do not qualify for immediate entry to an honours course. Applied Science: candidates not satisfying course requirements may be considered for a preliminary year, provided they satisfy the general requirement and have an O or A pass in Mathematics. Candidates with O.N.C., H.N.C., O.N.D., H.N.D. may be considered.

Books Recommended

A Compendium of University Entrance Requirements. This is the most complete and authoritative source, but omits requirements for some Combined and Joint Honours courses

Higher Education in the United Kingdom. This is intended mainly for overseas students

University and College Entrance: the Basic Facts

For publishers and prices, see BIBLIOGRAPHY, p. 299.

Table III. First Degree Courses Available at English and Welsh Universities and Course Requirements

Art Subjects

All courses take three years unless otherwise stated.

Course	Degree	Requirements
General, Joint, or Combined Honours Courses	B.A.	<p>2 A-LEVELS REQUIRED: <i>Hull, Nottingham, Sheffield, Southampton, York, Aberystwyth, Bangor, Swansea:</i> no further special requirements <i>Bristol, Liverpool:</i> Latin or Greek or Mathematics O-level <i>Exeter:</i> Latin O-level <i>London (Bedford, L.S.E., University College):</i> 2 foreign languages O-level (1 classical)</p> <p>3 A-LEVELS REQUIRED: <i>Leeds, Leicester, Southampton:</i> no further special requirements <i>Birmingham:</i> Mathematics O-level if course includes Psychology <i>Hull:</i> (for Historical or Political Studies)</p>
General Ordinary Courses	B.A.	<p>2 A-LEVELS REQUIRED: <i>Durham, Newcastle:</i> Latin or Greek O-level <i>Exeter:</i> Latin O-level <i>Wales (Aberystwyth):</i> 1 Arts A-level; (Bangor, Cardiff, Swansea, Lampeter): no further special requirements <i>London (Bedford, Birkbeck, King's, Royal Holloway):</i> 2 foreign languages O-level (including Latin or Greek)</p> <p>3 A-LEVELS PREFERRED: <i>Manchester</i></p>

Ancient History Honours	B.A.	<p>AS FOR GENERAL HONOURS COURSES: <i>Leeds, Liverpool, Sheffield</i></p> <p><i>Exeter</i>: subject for general degree, no specific requirements <i>Keele</i>: part of Latin and Greek courses</p> <p>2 A-LEVELS REQUIRED: <i>Manchester</i>: (i) Greek and Ancient History course: Greek A-level and either Latin or Ancient History A-level; Latin O-level; (ii) Latin and Ancient History Course: Latin and Ancient History A-level <i>Nottingham</i>: (2 Arts A-levels); Latin A-level and preferably Greek or Ancient History A-level <i>Reading</i>: Latin A-level <i>Sheffield</i>: no further special requirements <i>Wales (Lampeter)</i>: preferably Latin or Greek <i>London (University College)</i>: History A-level, 2 foreign languages O-level (1 classical)</p>
Architecture	B.Arch. Hons. B.Arch. Hons. or Ord. B.Arch. B.A. Hons.	<p>3 A-LEVELS REQUIRED: <i>Birmingham</i>: no further special requirements</p> <p><i>Newcastle</i>: additional 2 years following 3 years B.A. course. See below <i>Sheffield</i> (5 years): 2 A-levels preferably Mathematics and Physics *<i>Liverpool</i> (5 years): 3 A-levels, preferably Mathematics and Physics</p> <p><i>Wales (Cardiff)</i> (5 years): 2 A-levels *<i>Manchester</i> (5 years): 3 A-levels, preferably Art A-level and either Mathematics or approved Science subject <i>Sheffield</i> (5 years): requirements as for B.Arch. Hons. Degree <i>London (University College)</i>: 2 Arts A-levels including Mathematics; 2 foreign languages O-level (1 classical); English Language O-level advisable * <i>Liverpool</i> and <i>Manchester</i> prefer combined Arts and Science A-levels.</p>

Course	Degree	Requirements
Architecture (<i>contd</i>)	B.A. B.Sc.(Arch.) Hons.	<i>Newcastle</i> : 2 A-levels, Mathematics A-level preferred, Mathematics O-level required <i>London</i> (University College): 2 A-levels including Mathematics and English Language O-level advisable
Classics Honours	B.A.	2 A-LEVELS REQUIRED: <i>Hull</i> : Latin A-level; Greek O-level <i>Nottingham</i> : 2 Arts A-levels including Latin required, Greek A-level or Ancient History A-level preferred <i>Wales</i> (Swansea): Latin A-level required, Greek A-level preferred; Greek O-level required; (Lampeter): Latin A-level required, Greek A-level preferred <i>London</i> (Bedford and Royal Holloway): Latin A-level and Greek A-level preferred; 2 foreign languages O-level (1 classical); (Birkbeck): Latin A-level required, Greek A-level preferred; 2nd foreign language O-level; (Westfield): 2 foreign languages O-level (1 classical) 2 A-LEVELS, LATIN AND GREEK, REQUIRED: <i>Bristol, Durham</i> (3 or 4 years), <i>Exeter, Leeds, Liverpool, Manchester, Newcastle</i> (3 or 4 years), <i>Reading, Sheffield, Southampton, Wales</i> (Aberystwyth, Bangor, Cardiff), <i>London</i> (King's, Queen Mary, University College)
English Honours	B.A.	3 A-LEVELS INCLUDING LATIN REQUIRED: <i>Birmingham</i> (3 years): Greek A-level also (4 years): no further special requirements 2 A-LEVELS REQUIRED: * <i>London</i> (Birkbeck, 4 years; Westfield): no further special requirements; (Bedford): preferably English Literature A-level or Latin A-level; (Royal Holloway): preferably Latin A-level

Newcastle: English Literature A-level preferred; Latin or Greek at O-level

2 A-LEVELS INCLUDING ENGLISH LITERATURE REQUIRED:

Bristol, Durham, Liverpool, Wales (Bangor): Latin or Greek O-level

Exeter, Reading: Latin O-level

Hull: Latin A-level preferred; French or Latin O-level

Leeds: language other than English at A-level

Wales (Aberystwyth, Cardiff, Swansea, Lampeter): no other special requirements

* *London* (King's): preferably Latin or Greek A-level; (Queen Mary): preferably Latin A-level; (University College): no other special requirements

Nottingham: Latin O-level advisable

Sheffield: another Arts A-level; Latin O-level

3 A-LEVELS REQUIRED:

Birmingham: 1 language other than English at A-level; Latin or Greek O-level

Leicester: English Literature A-level; Latin and modern foreign language O-level

Manchester: 3 A-levels preferred; English Literature A-level required and either Latin A-level or Greek A-level; and Latin or Greek at O-level

Southampton: Latin A-level and English Literature A-level; 2nd language other than English O-level (occasionally Latin A-level not necessary)

York: 3 A-levels preferred; English Literature A-level required; language other than English at A-level preferred; reading knowledge of Latin advisable

* All London colleges require 2 foreign languages at O-level (1 classical) for this course.

English and Greek
Combined
Honours

B.A.

2 A-LEVELS, GREEK AND ENGLISH LITERATURE, REQUIRED:

Exeter, Sheffield, and *Southampton*: Latin O-level

Bristol: no further special requirements

Hull: French or Latin at O-level

3 A-LEVELS REQUIRED:

Birmingham: no further special requirements

Course	Degree	Requirements
English and Greek Combined Honours (<i>contd.</i>)		<i>Manchester</i> : (3 Arts A-levels preferred); Greek A-level, English Literature A-level, Latin O-level required <i>Reading</i> : Latin, Greek, English Literature at A-level
English and Latin Combined Honours	B.A.	2 A-LEVELS, LATIN AND ENGLISH LITERATURE, REQUIRED: <i>Exeter, Hull, Reading, and Sheffield</i> <i>Southampton</i> : 2nd language other than English at O-level 3 A-LEVELS INCLUDING LATIN REQUIRED: <i>Birmingham</i> : no further special requirements <i>Manchester</i> : 3 A-levels preferred (all must be Arts subjects), English Literature A-level
English and Philosophy Combined Honours	B.A.	2 A-LEVELS REQUIRED: <i>Newcastle</i> : English A-level preferred; Latin and Greek at O-level required 2 A-LEVELS INCLUDING ENGLISH LITERATURE REQUIRED: <i>Bristol, Durham, and Manchester</i> : (2 Arts A-levels), Latin or Greek O-level <i>Exeter</i> : Latin O-level <i>Hull</i> : French or Latin O-level <i>Liverpool</i> : Latin or Greek or Mathematics O-level <i>Sheffield</i> : language other than English at O-level <i>York</i> : Mathematics O-level advisable <i>Reading, and Waies</i> (Aberystwyth and Bangor): no further special requirements 3 A-LEVELS REQUIRED: <i>Birmingham</i> : no further special requirements <i>Southampton</i> : English Literature; Latin O-level and a language other than English O-level

Fine Arts Honours	B.A.	All courses take 4 years, apart from that at the Courtauld Institute, London
History of Art Honours	B.A.	<p>FINE ART COURSE <i>Leeds</i>: 3 A-levels, modern foreign language A-level preferred <i>Newcastle</i>: 2 A-levels; entrance examination <i>Reading</i>: 2 A-levels</p> <p>ENGLISH AND HISTORY OF ART COURSE <i>*Manchester</i>: 3 A-levels preferred (all must be Arts); English Literature A-level required, foreign language A-level preferred, Latin or Greek at O-level</p> <p>HISTORY OF ART COURSE (3 YEARS) <i>*London</i> (Courtauld Institute): 2 A-levels; 2 foreign languages O-level (1 classical) <i>* Manchester and London</i> do not accept Art as an approved A-level unless it includes History of Art.</p>
French Honours	B.A.	<p>2 A-LEVELS REQUIRED INCLUDING FRENCH REQUIRED: <i>Bristol, Liverpool</i> (3 or 4 years), <i>Newcastle</i>: Latin or Greek O-level <i>Durham, Exeter, Hull, and Leeds</i>: Latin O-level <i>Nottingham</i>: another foreign language A-level; Latin O-level <i>Reading</i> (4 years): Latin or another foreign language A-level <i>Sheffield</i>: 2 Arts A-levels; Latin preferred. Latin O-level <i>Wales</i> (4-year courses) (<i>Aberystwyth, Cardiff, Lampeter</i>): no special requirements; (<i>Bangor</i>): Latin or Greek O-level; (<i>Swansea</i>): English Literature A-level preferred <i>London</i> (<i>Birkbeck and Queen Mary</i>): prefer Latin A-level; Latin or Greek O-level; (<i>University College</i>) (4 years): Latin or Greek O-level; (<i>Westfield</i>): 3 foreign languages O-level including Greek or Latin; (<i>Royal Holloway</i>): as <i>Westfield</i>, also prefer French and Latin A-level</p>

Course	Degree	Requirements
French Honours (contd)		<p>3 A-LEVELS REQUIRED INCLUDING FRENCH: <i>Birmingham, Leicester, Manchester</i>: (all Arts A-levels; Mathematics included); Latin O-level</p> <p><i>Southampton</i>: Latin A-level (occasionally Latin O-level acceptable)</p> <p><i>London (King's)</i>: Latin A-level preferred; Latin and Greek at O-level required; (Bedford): 3 A-levels preferred; French A-level required; Latin A-level preferred; Latin or Greek at O-level</p> <p>An extra year in France at: <i>Hull</i> (optional), <i>Leicester, Newcastle, Southampton, Wales</i> (Aberystwyth, Bangor, Cardiff, Swansea, Lampeter), <i>London</i> (King's, University College)</p>
French and German Combined Honours	B.A.	<p>2 A-LEVELS, FRENCH AND GERMAN, REQUIRED: <i>Bristol</i> (4 years), <i>Liverpool</i> (4 years), <i>Newcastle</i>: Latin or Greek O-level <i>Nottingham</i>: see above French Honours <i>Durham, Exeter, Hull, Leeds, Reading</i> (4 years), <i>Southampton</i> (4 years): Latin O-level</p> <p><i>Sheffield</i>: Latin A-level preferred; Latin O-level required</p> <p><i>Wales</i> (Bangor and Swansea) (4 years)</p> <p>3 A-LEVELS INCLUDING FRENCH AND GERMAN REQUIRED: <i>Birmingham</i>: no further special requirements <i>Manchester</i> (4 years): (Arts A-levels), Latin O-level <i>Southampton, Wales</i> (Swansea): 1 year in French and German speaking countries</p>
French and Latin Honours	B.A.	<p>2 A-LEVELS, FRENCH AND LATIN, REQUIRED: <i>Bristol, Exeter, Hull, Leeds, Nottingham, Reading, Sheffield, Southampton</i></p> <p>3 A-LEVELS INCLUDING FRENCH AND LATIN REQUIRED: <i>Birmingham</i></p>

French and Spanish Combined Honours	B.A.	<p>2 A-LEVELS INCLUDING FRENCH REQUIRED: <i>Hull</i>: Spanish and Latin O-level</p> <p>2 A-LEVELS, FRENCH AND SPANISH, REQUIRED: <i>Bristol</i> (4 years), <i>Newcastle</i>: Latin or Greek O-level <i>Durham, Exeter, Leeds, Southampton</i> (4 years): Latin O-level <i>Sheffield</i>: Latin A-level preferred; Latin O-level required <i>Nottingham</i>: See French Honours</p> <p>3 A-LEVELS REQUIRED: <i>Birmingham</i>: French A-level <i>Manchester</i> (4 years): Arts A-levels; French and Spanish A-level; Latin O-level <i>Southampton</i>: 1 year in France and 1 long vacation in Spain</p>
Geography Honours	B.A.	<p>2 A-LEVELS REQUIRED: <i>London</i> (Bedford and L.S.E.): 2 foreign languages O-level (1 classical)</p> <p>2 A-LEVELS INCLUDING GEOGRAPHY REQUIRED: <i>Durham, Hull, Reading, Sheffield</i>: no further special requirements <i>Exeter</i>: Latin or Mathematics O-level <i>Liverpool and Bristol</i>: Latin or Greek or Mathematics O-level <i>Nottingham</i>: (i) English Literature or History or a modern foreign language A-level required; (ii) Faculty of Law and Social Science: as (i) and Mathematics O-level <i>London</i> (Birkbeck, 4 years; King's, Queen Mary, University College): 2 foreign languages O-level (1 classical)</p> <p>3 A-LEVELS INCLUDING GEOGRAPHY REQUIRED: <i>Birmingham, Manchester, Newcastle</i>: no further special requirements <i>Leeds</i>: French or German O-level</p>

Course	Degree	Requirements
Geography Honours (contd)	B.Sc.	<p><i>Leicester</i>: French and Mathematics O-level advisable <i>Southampton</i>: modern foreign language O-level <i>Wales</i> (Aberystwyth): either History or a modern foreign language or Economics A-level required; (Swansea): Mathematics O-level advisable</p> <p>2 A-LEVELS REQUIRED: <i>Bristol</i>: 2 Science A-levels; a 3rd subject in Mathematics or Science at O-level <i>London</i> (Belford): 2 Science A-levels; English Language or Literature O-level, and Mathematics O-level and foreign language O-level</p> <p>2 A-LEVELS INCLUDING GEOGRAPHY REQUIRED: <i>Exeter</i>: 1 Science A-level; Mathematics O-level <i>Hull, Sheffield</i>: no further special requirements <i>London</i> (Birkbeck, Queen Mary, University College): 2 Science A-levels</p> <p>3 A-LEVELS INCLUDING GEOGRAPHY REQUIRED: <i>Birmingham</i>: 2 Science A-levels <i>Durham</i>: including 2 Science A-levels <i>Liverpool</i>: 3 or 4 years <i>Reading</i>: no further special requirements <i>Leeds</i>: 2 Science A-levels; Mathematics O-level and either French or German O-level</p> <p><i>Leicester</i>: French and Mathematics O-level advisable <i>Manchester</i>: Geology A-level preferred and Geography A-level required for Geography and Geology General Science Degree <i>Newcastle</i>: Geology or Biology A-level preferred <i>Nottingham</i>: Mathematics A-level preferred <i>Southampton</i>: 3 Science A-levels; Mathematics and foreign language O-level <i>Wales</i> (Aberystwyth): Mathematics O-level; (Swansea): Mathematics O-level advisable</p>

German Honours	B.Sc. Soc.Sc.	<i>London</i> (King's): 3 Science A-levels and English Language O-level and a foreign language O-level advisable <i>Birmingham</i> : 3 A-levels (taken at same sitting) including Geography A-level; Mathematics O-level <i>Southampton</i> : 2 A-levels including Geography A-level <i>Exeter</i> : 2 A-levels including Geography A-level <i>Sheffield</i> : 2 A-levels including Geography A-level
	B.A. Soc. Studies	2 A-LEVELS REQUIRED: <i>London</i> (Bedford and Westfield): 2 foreign languages at O-level (1 classical); (Royal Holloway): Latin A-level preferred; 2 foreign languages at O-level (1 classical)
	B.A.Econ.	2 A-LEVELS INCLUDING GERMAN REQUIRED: <i>Bristol, Durham, Liverpool, Newcastle, Southampton</i> : Latin or Greek O-level <i>Exeter, Leicester</i> (4 years), <i>Reading</i> (4 years): Latin O-level <i>Sheffield</i> : 2 Arts A-levels <i>Nottingham</i> : another foreign language at A-level if it is to be 2nd subject studied; Latin O-level <i>Hull and Wales</i> (Aberystwyth, Bangor, Cardiff, 4 years): no further special requirements <i>London</i> (Birkbeck): 1 classical language O-level; (Queen Mary): 1 classical language O-level; another European language A-level preferred; (University College, 4 years): Latin or Greek O-level; (Westfield): Latin or Greek O-level required
	B.A.	3 A-LEVELS INCLUDING GERMAN REQUIRED: <i>Birmingham and Leeds</i> : no further special requirements <i>Wales</i> (Swansea): 4 years

<i>Course</i>	<i>Degree</i>	<i>Requirements</i>
German Honours (<i>contd</i>)		<p>3 A-LEVELS PREFERRED: <i>Manchester</i>: German A-level required; Latin or Greek O-level <i>London</i> (King's, 4 years): German required, Latin A-level preferred; 1 classical language O-level <i>Leicester, Wales</i> (Aberystwyth, Cardiff, Swansea), <i>London</i> (King's and University College): 1 year in Germany (or Austria)</p>
Greek Honours	B.A.	<p>2 A-LEVELS REQUIRED: <i>Nottingham</i>: 2 Arts A-levels including Latin A-level; Greek or Ancient History A-level preferred <i>London</i> (Bedford): Greek A-level preferred; 2 foreign languages O-level including Latin or Greek; (Royal Holloway): Latin A-level, Greek A-level preferred, 2 foreign languages O-level including Latin or Greek; (Westfield): 2 foreign languages at O-level including Latin or Greek</p> <p>2 A-LEVELS INCLUDING GREEK REQUIRED: <i>Bristol</i>: no further special requirements <i>Exeter</i>: Latin or Ancient History A-level; Latin O-level <i>Hull, Liverpool, Manchester</i> (2 Arts A-levels), <i>Sheffield</i> (2 Arts A-levels): Latin O-level <i>Leeds</i>: Ancient History A-level; Latin O-level <i>Reading</i>: Latin A-level <i>Southampton</i>: 2nd language other than English O-level <i>Wales</i> (Aberystwyth): no further special requirements; (Bangor): Latin O-level required; (Cardiff, Swansea): Latin A-level preferred <i>London</i> (Birkbeck and King's): Latin A-level; (Queen Mary): Latin A-level preferred; (University College): Latin O-level</p> <p>3 A-LEVELS INCLUDING GREEK REQUIRED: <i>Birmingham</i>: no further special requirements (4 years if no Greek A-level) <i>Leicester</i>: modern foreign language O-level</p>

Newcastle (1 year): successful completion of honours course in Latin with Greek to Final General Standard required for admission

History Honours

B.A.

2 A-LEVELS REQUIRED:

Leeds: 1 foreign language A-level and another foreign language O-level required (preferably one of these should be French)

Nottingham: History A-level preferred; modern foreign language O-level

Southampton: 2 languages other than English at O-level (normally including Latin)

**London* (Bedford and Royal Holloway): Latin A-level preferred

*York and London** (Birkbeck, 4 years; L.S.E.; School of Oriental and African Studies, 3 or 4 years; School of Slavonic and East European Studies; Westfield): no further special requirements

2 A-LEVELS INCLUDING HISTORY REQUIRED:

Bristol, Liverpool, Durham: Latin or Greek O-level

Newcastle, Reading, Sheffield: 2 Arts A-levels; Latin O-level

Exeter: modern European language and Latin O-level

Wales (Aberystwyth): Latin and French A-level preferred

Wales (Bangor): Latin O-level required; (Cardiff, Swansea, Lampeter), and *London** (King's, Queen Mary and University College): no further special requirements

3 A-LEVELS REQUIRED:

Birmingham: Latin at O-level

Hull: History A-level; Latin O-level advisable

Leicester: History A-level; Latin or French O-level

3 A-LEVELS PREFERRED:

Manchester: History A-level required; Latin and a modern foreign language preferred at A-level, required at O-level

* All the London Colleges require 2 foreign languages O-level (1 classical)

<i>Course</i>	<i>Degree</i>	<i>Requirements</i>
Italian Honours	B.A.	<p>2 A-LEVELS REQUIRED: <i>Leeds</i> (4 years): Latin O-level; (3 years): Italian A-level preferred; Latin O-level <i>Liverpool</i> (3 or 4 years): Latin or Greek O-level <i>Manchester</i>: Italian A-level; Latin O-level <i>Reading</i> (4 years): Latin or 2 major European languages* A-level; Latin O-level if not A-level <i>London</i> (Bedford): 2 foreign languages O-level (1 classical); (University College): Latin A-level preferred; 2nd foreign language O-level</p> <p>3 A-LEVELS REQUIRED: <i>Birmingham</i>: Latin O-level</p> <p>NO SPECIAL REQUIREMENTS: <i>Hull</i> (Main subject of Joint Degree) * Major European languages: French, German, Italian, Spanish, Russian, English</p>
Latin Honours	B.A.	<p>2 A-LEVELS REQUIRED: <i>London</i> (Bedford): Latin A-level preferred; 2nd foreign language O-level (1 classical); (Royal Holloway): Latin and Greek A-level preferred; and 2 foreign languages O-level (1 classical); (Westfield): 2 foreign languages (1 classical)</p> <p>2 A-LEVELS INCLUDING LATIN REQUIRED: <i>Bristol, Hull, Leeds, Newcastle</i> (3 or 4 years), <i>Reading, Sheffield</i> (2 Arts A-levels), <i>Wales</i> (Aberystwyth, Bangor, Cardiff and Swansea): no further special requirements</p> <p><i>Exeter</i> and <i>Liverpool</i>: Greek O-level advisable <i>Manchester</i>: (2 Arts A-levels), Greek A-level preferred; Greek O-level advis- able <i>Nottingham</i>: (2 Arts A-levels), Greek or Ancient History A-level preferred</p>

Mathematical Honours Courses		<p><i>Southampton</i>: 2nd language other than English O-level <i>Wales</i> (Lampeter): Greek O-level advisable <i>London</i> (Birkbeck): Greek A-level preferred; 2nd foreign language O-level; (King's, Queen Mary, University College): Greek O-level</p> <p>3 A-LEVELS INCLUDING LATIN REQUIRED: <i>Birmingham</i>: no further special requirements <i>Leicester</i>: modern foreign language O-level</p>
B.Soc.Sc.		<p><i>Birmingham</i>: 3 A-levels at one sitting, including one of Pure and Applied Mathematics, or Pure Mathematics with Statistics</p>
B.A.Spec.		<p><i>Hull</i>: 2 A-levels, Pure Mathematics and Applied Mathematics (or similar combination) (in Applied and Pure Mathematics):</p>
B.A. Joint		<p><i>Hull</i>: 2 A-levels, Pure Mathematics, Applied Mathematics (or similar qualification)</p>
B.A.		<p>2 A-LEVELS REQUIRED: <i>Bristol</i>: Pure Mathematics, Applied Mathematics A-level; Physics A-level preferred, Latin or Greek O-level required <i>Durham, Nottingham</i>: Pure Mathematics and Applied Mathematics A-level (or Pure and Applied Mathematics A-level) <i>Exeter</i>: Pure Mathematics, Applied Mathematics A-level; Latin O-level <i>Manchester</i>: Pure Mathematics and Applied Mathematics A-level, or Pure and Applied Mathematics and Further Mathematics A-level <i>Southampton</i>: Pure Mathematics and Applied Mathematics or Mathematics and Further Mathematics A-level <i>York</i>: Pure and Applied Mathematics A-level (or similar qualification) <i>Wales</i> (Aberystwyth): Pure and Applied Mathematics or Pure Mathematics A-level; (Cardiff): preferably Pure Mathematics A-level or Pure and Applied Mathematics A-level, or Pure Mathematics with Statistics A-level</p>

Course	Degree	Requirements
Mathematical Honours Courses (<i>contd</i>)		<p>* <i>London</i> (Bedford and Queen Mary): Pure Mathematics and Applied Mathematics A-level; (Birkbeck, University College): Pure Mathematics and either Applied Mathematics or Physics A-level</p> <p>3 A-LEVELS REQUIRED:</p> <p><i>Birmingham</i>: 1 of Pure Mathematics or Applied Mathematics A-level, or Pure and Applied Mathematics A-level</p> <p><i>Leeds</i> (3 or 4 years): Pure and Applied Mathematics A-level and Further Mathematics A-level required; (4 years): either Pure and Applied Mathematics or Mathematics-for-Science A-level</p> <p><i>Leicester</i>: Pure Mathematics and either Applied Mathematics or Physics A-level</p> <p><i>Liverpool</i>: no further special requirements</p> <p><i>Reading</i>: Pure Mathematics A-level (Applied Mathematics A-level preferred) (2 A-levels considered)</p> <p><i>Sheffield</i>: Pure Mathematics, Applied Mathematics A-level or Pure and Applied Mathematics A-level; a language other than English at A-level preferred</p> <p><i>Wales</i> (Bangor, for Pure Mathematics Honours): Pure and Applied Mathematics or Pure Mathematics A-level; (Swansea): Pure Mathematics and Applied Mathematics A-level preferred; otherwise Pure and Applied Mathematics or Mathematics with Statistics A-level and French or German or Russian at O-level required</p> <p>* <i>London</i> (King's): Pure Mathematics and Applied Mathematics A-level</p> <p>3 A-LEVELS PREFERRED:</p> <p><i>Newcastle</i>: 2 A-levels required including one of Pure and Applied Mathematics or Pure Mathematics A-level</p> <p><i>Wales</i> (Bangor, Pure and Applied Mathematics Joint Course): Pure Mathematics or Applied Mathematics A-level preferred</p> <p>* <i>London</i> (Royal Holloway): Pure Mathematics A-level and either Applied Mathematics or Physics A-level required</p>

* All the London colleges require 2 foreign languages O-level (1 classical) for this course.

B.A.	<p>2 A-LEVELS INCLUDING MUSIC REQUIRED: <i>Exeter</i>: Latin O-level <i>Reading</i> (for Music or Music and English Literature), and <i>Manchester</i> (Arts A-levels): no further special requirements <i>Reading</i> (for Music and German): Latin O-level</p>
B.A. Spec.	<p><i>Hull</i>: History or English or modern foreign language O-level <i>Leeds</i>: no further special requirements; musical proficiency required</p>
B.A. Hons.	<p>2 A-LEVELS REQUIRED: <i>Sheffield</i> (Arts A-levels): specified foreign language A-level (and Latin O-level for Music and French, and Music and Spanish)</p> <p>2 A-LEVELS INCLUDING MUSIC REQUIRED: <i>Bristol</i> and <i>Newcastle</i>: Latin or Greek O-level <i>Nottingham</i>: modern foreign language A-level preferred <i>Wales</i> (Aberystwyth, Bangor): no further special requirements</p> <p>3 A-LEVELS INCLUDING MUSIC REQUIRED: <i>Durham</i>: Latin O-level required</p> <p>3 A-LEVELS PREFERRED: <i>Wales</i> (Cardiff); Music A-level required</p>
B.A. Single Hons.	<p><i>Southampton</i>: 2 A-levels including Music A-level and a modern language O-level other than English</p>
B.A. Combined Hons.	<p><i>Southampton</i>: (i) 2 A-levels including Music, choice of O-level dependent on option; (ii) (Music and English course): 3 A-levels including Music and English Literature A-level</p>
B.Mus.	<p>2 A-LEVELS INCLUDING MUSIC REQUIRED: <i>Reading</i> (4 years) and <i>Sheffield</i>: instrumental proficiency required</p>

<i>Course</i>	<i>Degree</i>	<i>Requirements</i>
Music (<i>contd</i>)	B.Mus. Hons.	<p>2 A-LEVELS REQUIRED: <i>London</i> (Battersea College of Technology, Royal Academy of Music, Royal College of Music, and Trinity College of Music): one of the following at O-level: Latin, French, Italian, German, Spanish, or Russian</p> <p>2 A-LEVELS REQUIRED INCLUDING MUSIC: <i>Manchester</i> (3 or 4 years): no further special requirements <i>Nottingham</i>: a modern foreign language A-level preferred <i>Wales</i> (Aberystwyth and Bangor): no further special requirements</p> <p>3 A-LEVELS REQUIRED INCLUDING MUSIC: <i>Birmingham</i>: (4 years if no proficiency as performer etc.)</p> <p>3 A-LEVELS PREFERRED: <i>Cardiff</i>: Music A-level required (musical proficiency is advisable for these courses)</p>
Oriental Languages and Studies Honours	B.A.	<p>2 A-LEVELS REQUIRED: <i>Durham</i> and <i>Liverpool</i> (4 years): Latin or Greek O-level <i>Leeds</i>: language other than English O-level (Hebrew or Arabic preferred) <i>Manchester</i> (3 or 4 years): a foreign language A-level preferred; Latin O-level advisable <i>Wales</i> (Bangor, 4 years; Cardiff): no further special requirements <i>London</i> (School of Oriental and African Studies, 3 or 4 years): 2 foreign languages O-level (1 classical)</p>
Philosophy Honours	B.Soc.Sc. B.Sc. B.A.	<p><i>Birmingham</i>: 3 A-levels; Mathematics O-level <i>Wales</i> (Aberystwyth and Swansea): as for B.A. (<i>see below</i>)</p> <p>2 A-LEVELS REQUIRED: <i>Bristol</i> and <i>Liverpool</i>: Latin, Greek or Mathematics O-level</p>

Philosophy and Classics Honours		<p><i>Durham</i> and <i>Newcastle</i>: Latin or Greek O-level</p> <p><i>Exeter</i>: Latin or Mathematics O-level</p> <p><i>Hull, Leeds</i> (1st year combined studies), <i>Manchester, Nottingham</i> (Arts A-levels; O-level Mathematics for Psychology or Sociology), <i>Reading</i></p> <p><i>Sheffield</i>: language other than English O-level (Greek, Latin, French, or German preferred)</p> <p><i>Southampton</i>: no further requirements</p> <p><i>Wales</i> (Aberystwyth; Cardiff; Swansea, 4 years; Lampeter): no further special requirements; (Bangor): Mathematics O-level</p> <p><i>London</i> (Bedford; Birkbeck, 4 years; King's; and University College): 2 foreign languages O-level (1 classical)</p> <p>3 A-LEVELS REQUIRED:</p> <p><i>Birmingham, Leicester</i>: no further special requirements</p>
Philosophy and Greek Honours	B.A.	<p><i>Bristol</i>: 2 A-levels, Latin and Greek</p> <p>2 A-LEVELS REQUIRED:</p> <p><i>London</i> (Bedford): Greek A-level preferred; 2 foreign languages O-level (1 classical)</p> <p>2 A-LEVELS INCLUDING GREEK REQUIRED:</p> <p><i>Exeter</i>: Latin O-level</p> <p><i>Hull, Sheffield</i>: no further special requirements</p> <p><i>Southampton</i>: 2nd language other than English O-level</p> <p><i>London</i> (University College): 2nd foreign language O-level</p> <p>3 A-LEVELS REQUIRED:</p> <p><i>Birmingham</i>: no further special requirements</p>
Philosophy and Latin Honours	B.A.	<p>2 A-LEVELS INCLUDING LATIN REQUIRED:</p> <p><i>Hull</i> and <i>Sheffield</i>: no further special requirements</p> <p><i>Southampton</i>: 2nd language other than English O-level</p>

<i>Course</i>	<i>Degree</i>	<i>Requirements</i>
Philosophy and Latin Honours (<i>contd</i>)		3 A-LEVELS INCLUDING LATIN REQUIRED: <i>Birmingham</i> : no further special requirements
Philosophy and Psychology Honours	B.A.	2 A-LEVELS REQUIRED: <i>Bristol</i> : Latin or Greek or Mathematics O-level <i>Durham</i> and <i>Newcastle</i> : Latin or Greek O-level <i>Exeter</i> : Latin or Mathematics O-level <i>Hull</i> : no further special requirements <i>Sheffield</i> : Language other than English O-level, preferably Greek, Latin, French, or German <i>Wales</i> (Bangor): Mathematics, Physics, Zoology, or Biology O-level <i>London</i> (Bedford and Birkbeck, 4 years; University College): 2 foreign languages O-level (1 classical)
	B.Sc. B.A.Econ.	3 A-LEVELS REQUIRED: <i>Birmingham</i> : Mathematics O-level <i>Hull</i> : 2 A-levels <i>Sheffield</i> : 2 A-levels
Russian Honours	B.A.	2 A-LEVELS REQUIRED: <i>Liverpool</i> (3 or 4 years): Latin or Greek O-level <i>Manchester</i> (2 Arts A-levels): Latin or Greek A-level preferred; Latin or Greek O-level required; 4-year course for those with no previous knowledge of Russian <i>Leeds</i> and <i>Nottingham</i> (4 years): Russian O-level 2 A-LEVELS INCLUDING RUSSIAN REQUIRED: <i>Exeter</i> : Latin O-level <i>Leeds</i> (3 years) and <i>Nottingham</i> (2 Arts A-levels): no further special requirements <i>London</i> (School of Slavonic and Eastern European Studies): Greek or Latin O-level

3 A-LEVELS REQUIRED:

Spanish Honours	B.A.	<p><i>Birmingham</i> (3 years): Russian A-level; (4 years): a foreign language other than Russian A-level</p> <p>2 A-LEVELS REQUIRED: <i>Liverpool</i>: 4-year course for those without Spanish A-level <i>London</i> (Westfield): 2 foreign languages O-level (1 classical)</p> <p>2 A-LEVELS INCLUDING SPANISH REQUIRED: <i>Bristol</i> and <i>Durham</i>, <i>Liverpool</i>*, <i>Newcastle</i>*: Latin or Greek O-level <i>Exeter</i>, <i>Leeds</i>, <i>Sheffield</i> (2 Arts A-levels), <i>Southampton</i>: Latin O-level <i>Nottingham</i>: a modern foreign language A-level <i>Wales</i> (Cardiff): English Literature A-level preferred; Latin, French, or Italian O-level <i>London</i> (Birkbeck, Queen Mary): 1 classical language O-level; (King's): Latin A-level preferred; 1 classical language O-level</p> <p>3 A-LEVELS REQUIRED AND LATIN O-LEVEL: <i>Birmingham</i>*: no other special requirements</p> <p>3 A-LEVELS PREFERRED: <i>Manchester</i>: 3 Arts A-levels including Spanish; Latin O-level</p> <p>*4-year course for those without A-level Spanish.</p>
Theological and Biblical Studies	B.A.	<p>THEOLOGY</p> <p>2 A-LEVELS REQUIRED: <i>Bristol</i>, <i>Newcastle</i>: Latin or Greek O-level <i>Exeter</i>: Latin O-level <i>Hull</i>: a foreign language A-level preferred; Latin or Greek O-level advisable <i>Nottingham</i>: Latin or Greek O-level advisable <i>Leeds</i>: no further special requirements <i>London</i> (King's, New College, Richmond): no further special requirements <i>Wales</i> (Lampeter): (i) Theology: Greek O-level advisable; (ii) Theology with Philosophy: no further requirements</p>
	B.D. B.A.	

<i>Course</i>	<i>Degree</i>	<i>Requirements</i>
Theological and Biblical Studies (<i>contd</i>)		<p><i>Southampton</i>: (i) Greek and Theology: Greek A-level and 2nd language other than English at O-level; (ii) Latin and Theology: Latin A-level and 2nd language other than English at O-level; (iii) History and Theology or Philosophy and Theology: no further special requirements</p> <p>3 A-LEVELS REQUIRED: <i>Birmingham</i>: no further special requirements <i>Durham</i>: Latin or Greek at O-level</p> <p>3 A-LEVELS PREFERRED: <i>Manchester</i>: 3 Arts A-levels</p> <p>BIBLICAL STUDIES</p> <p>2 A-LEVELS REQUIRED: <i>Manchester</i>: Latin or Greek O-level advisable <i>Wales</i> (Bangor): Religious Knowledge A-level preferred <i>Sheffield</i>: (Biblical History and Literature course), <i>Leeds</i>, and <i>Wales</i> (Cardiff): no further special requirements</p>
Welsh and Celtic Honours	B.A.	<p>CELTIC <i>Liverpool</i>: 2 A-levels; Latin or Greek O-level</p> <p>WELSH <i>Wales</i>: (Aberystwyth, Bangor, Cardiff, Swansea): 2 A-levels including Welsh</p>
Law and Social Science Subjects		
Law Honours	LL.B.	<p>2 A-LEVELS REQUIRED: <i>Birmingham</i>, <i>Exeter</i>, <i>Hull</i>, <i>Liverpool</i>, <i>Manchester</i>, <i>Newcastle</i>, <i>Nottingham</i>, <i>Sheffield</i>, <i>Southampton</i>, <i>Wales</i> (Aberystwyth): no further special requirements</p> <p><i>Bristol</i>: Latin O-level <i>Leeds</i>: English History and Latin O-level advisable</p>

	<p>B.Com. B.A. B.Sc.Soc.Sci. B.Sc.Econ.</p>	<p><i>London</i> (L.S.E. and University College): no further special requirements <i>Leeds</i>: no further special requirements <i>Nottingham</i>: no further special requirements <i>Southampton</i> (Law principal subject): no further special requirements <i>Wales</i> (Cardiff): Mathematics O-level advisable</p> <p>3 A-LEVELS REQUIRED (or 2 A-levels with distinctions in both): <i>London</i> (King's): English History O-level advisable</p>
Commerce Honours	B.Com.	<p><i>Birmingham</i>: 3 A-levels at same sitting; Mathematics O-level <i>Leeds</i>: 3 A-levels preferred <i>Liverpool</i>: 2 A-levels required</p>
Economics and Allied Subjects Honours	B.A.	<p>2 A-LEVELS REQUIRED: <i>Bristol</i>: Mathematics A-level preferred; Latin or Greek or Mathematics O-level; (Mathematics O-level required for Accountancy; Mathematics A-level required for Economics with Statistics) <i>Durham</i>: Geography or History or Mathematics or a modern language A-level <i>Liverpool</i>: Latin or Greek or Mathematics O-level <i>Nottingham</i>: Mathematics O-level; (Mathematics A-level required if Mathematics in Part I) <i>York, Wales</i> (Aberystwyth, Bangor, Swansea): Mathematics O-level advisable <i>Exeter, Reading</i>: no further special requirements <i>Southampton</i>: no further special requirements <i>Reading</i> (4 years, Agriculture with Economics): no further special requirements <i>London</i> (London School of Economics): no further special requirements <i>Leeds</i> (4 years Agriculture with Economics): Mathematics A-level preferred <i>Wales</i> (Aberystwyth, Swansea): See B.A. <i>London</i> (University College): Mathematics O-level advisable <i>Wales</i> (Cardiff): Mathematics O-level advisable <i>Manchester</i>: Mathematics O-level required for Statistics <i>Sheffield</i>: 2 or 3 A-levels; relevant A-levels for Geography and Mathematics as principal subjects</p>
	<p>B.Sc.Soc.Sc. B.Sc. B.Sc.Econ. B.Sc.</p>	
	<p>B.Sc.Econ. B.A.Econ.</p>	

Course	Degree	Requirements
Economics and Allied Subjects Honours (<i>contd</i>)	B.A.	3 A-LEVELS REQUIRED: <i>Leicester</i> : 3 of the following preferred at A-level: British Constitution, Economics, Economic History, Geography, History <i>Newcastle</i> : exceptionally 2 A-levels suffice <i>Birmingham</i> : 3 A-levels at same sitting; Mathematics O-level
	B.Sc.Soc.Sc. B.Com. B.Sc.	<i>Wales</i> (Cardiff): Economics and Pure Mathematics A-level required and a 3rd A-level in an approved Science subject <i>Hull</i> : English Literature and Mathematics A-level preferred
	B.Sc.Econ.	3 A-LEVELS PREFERRED: <i>Leeds</i> : Mathematics A-level required for Economics with Statistics course
	B.A.	<i>Birmingham</i> : 3 A-levels at same sitting; Mathematics O-level
	B.Com. B.Soc.Sc. B.A.	2 A-LEVELS REQUIRED: <i>Bristol</i> : British Constitution, Economic History or History A-level; Mathematics O-level <i>Exeter</i> : no further special requirements <i>Nottingham</i> : (i) <i>Faculty of Arts</i> : 2 Arts A-levels including Economic History or History A-level; (ii) <i>Faculty of Law and Social Science</i> : Economic History or History A-level; Mathematics O-level for joint Economics and Economic History <i>Hull</i> : may be taken as one main subject <i>Southampton</i> : may be taken as one main subject
Politics and Allied Subjects Honours	B.Sc.Econ. B.Sc.Soc.Sc.	2 A-LEVELS REQUIRED: <i>Bristol</i> : either British Constitution, Economic History, or History A-level; Latin or Greek or Mathematics O-level <i>Durham</i> : Geography or History or Mathematics or a modern language A-level <i>Liverpool</i> : Latin or Greek or Mathematics O-level
	B.A.	<i>Southampton</i> : Economics A-level preferred

	B.Sc.Econ.	<i>York</i> : Mathematics O-level advisable <i>Wales</i> (Aberystwyth): British Constitution, Economics, Geography, or History A-level
	B.A.	<i>Exeter, Newcastle, Nottingham</i> : no further special requirements <i>Reading, Wales</i> (Swansea): no further special requirements <i>Southampton</i> : no further special requirements <i>Manchester</i> : no further special requirements <i>Wales</i> (Cardiff): Mathematics O-level advisable <i>Sheffield</i> : 2 or 3 A-levels
	B.Sc.Soc.Sc. B.A.Econ. B.Sc.Econ. B.A.Econ.	3 A-LEVELS REQUIRED: <i>Leicester</i> : 3 of the following preferred at A-level: British Constitution, Economics, Economic History, Geography, or History <i>Birmingham</i> : 3 A-levels at same sitting; Mathematics O-level
	B.A.	3 A-LEVELS PREFERRED: <i>Leeds</i> : History A-level required
Politics (or Government) and Modern History	B.A.	2 A-LEVELS REQUIRED: <i>Exeter, Sheffield, Wales</i> (Swansea): no further special requirements <i>Manchester</i> : (i) Politics and Modern History: History A-level; modern foreign language O-level advisable (<i>see also</i> (ii) <i>below</i>) <i>Reading</i> : History A-level <i>Southampton</i> : either British Constitution, Economic History, or History A-level; modern foreign language O-level
		3 A-LEVELS REQUIRED: <i>Hull</i> : History A-level; Latin O-level advisable
		3 A-LEVELS PREFERRED: <i>Manchester</i> : (ii) Modern History with Economics and Politics: History A-level and modern foreign language O-level if not A-level

<i>Course</i>	<i>Degree</i>	<i>Requirements</i>
Sociological Subjects	B.Com. and B.Soc.Sc.	<i>Birmingham</i> : 3 A-levels at same sitting; Mathematics O-level
	B.Sc.Soc.Sc.	<i>Southampton</i> : 2 A-levels; (relevant A-levels expected for Mathematics or Geography joint)
	B.Sc.(Soc.)	<i>London</i> (Bedford): 2 A-levels; Mathematics O-level or A-level advisable (London School of Economics): 2 A-levels
	B.A.	2 A-LEVELS REQUIRED: <i>Hull, Nottingham</i> : no further special requirements <i>Exeter</i> : Mathematics or History O-level advisable <i>Liverpool</i> : Latin or Greek or Mathematics O-level <i>Reading</i> : Geography A-level for Geography and Sociology course <i>London</i> (Bedford): Mathematics O-level or A-level advisable; (London School of Economics): 2 foreign languages O-level (including Latin or Greek)
		3 A-LEVELS REQUIRED: <i>Leicester</i> : 3 of following preferred at A-level: British Constitution, Economics, Economic History, Geography, or History
B.A.Econ. B.Sc.Econ. B.A.Soc. Studies		3 A-LEVELS PREFERRED: <i>Leeds</i> : History and Mathematics A-level preferred at O-level if not A-level <i>Manchester</i> : 2 A-levels <i>Sheffield</i> : 2 or 3 A-levels <i>Wales</i> (Cardiff): 2 A-levels; Mathematics O-level advisable
		2 A-LEVELS REQUIRED: <i>Durham and Newcastle</i> : no further special requirements

Pure Science Subjects

Science – General. | R.Sc.

| 2 A-LEVELS REQUIRED:

<p>Joint, or Combined Honours Courses</p>	<p><i>Leeds</i> (4 years); *<i>London</i> (Birkbeck): no further special requirements <i>Bristol</i>: 3rd Mathematics or Science subject at O-level required <i>Hull</i>: except for Botany and Geology options, when 3 A-levels required <i>Wales</i> (Cardiff, 4 years): Mathematics at O-level *<i>London</i> (Bedford): English Language or Literature, Mathematics and foreign language O-level *<i>London</i> (Royal Holloway, Westfield, Chelsea C.S.T., Northern Polytechnic, Sir John Cass College, West Ham C.T., Woolwich Polytechnic): no further special requirements 3 A-LEVELS REQUIRED: <i>Durham</i> (2 Science A-levels); <i>Leeds</i> (3 years); <i>Leicester</i>; <i>Liverpool</i> (3 or 4 years); <i>Manchester</i>; <i>Newcastle</i> (3 or 4 years); <i>Nottingham</i>; <i>Reading</i>; <i>Wales</i> (Bangor); <i>London</i> (Queen Elizabeth College, Queen Mary College): no other special requirements <i>Exeter</i>, <i>Wales</i> (Cardiff, 3 years): Mathematics at O-level *<i>London</i> (King's): English Language and a foreign language at O-level advisable <i>Hull</i>: for Botany and Geology options (The choice of A-levels will normally depend on the subjects included in the course. For guidance in this see specific combined subject courses further in the table.) * All these London colleges require 2 Science A-levels with a 3rd Science subject at O-level for this course.</p>
<p>Science - General, Ordinary, and Pass Degree Courses</p>	<p>B.Sc.</p> <hr/> <p>2 A-LEVELS REQUIRED: <i>Durham</i>, <i>Wales</i> (Aberystwyth, Bangor, Swansea): no further special requirements <i>Wales</i> (Cardiff): Mathematics at O-level 3 A-LEVELS REQUIRED: <i>Liverpool</i>, <i>Manchester</i>, <i>Newcastle</i>, <i>Sheffield</i>, <i>Leeds</i>, <i>Reading</i>: see Science General Honours degree</p>

<i>Course</i>	<i>Degree</i>	<i>Requirements</i>
Anatomy Honours	B.Sc.	<p>2 A-LEVELS REQUIRED: <i>Bristol</i>: Biology A-level and either Physics or Chemistry A-level; Mathematics or 3rd Science subject at O-level <i>Leeds</i> (4 years): 2 of following A-levels preferred: Physics, Chemistry, Botany and Zoology</p> <p>3 A-LEVELS REQUIRED: <i>Birmingham</i>: Physics and Chemistry A-level and either Zoology or Biology or Botany A-level; Mathematics at least at O-level <i>Liverpool</i> (3 or 4 years): Physics and Chemistry A-level and either Zoology or Biology A-level <i>Newcastle</i> (3 years): Chemistry A-level and either Physics, Zoology, or Biology A-level; (4 years): Physics, Chemistry or Zoology A-level preferred <i>Wales</i> (Cardiff): Mathematics O-level <i>London</i> (University College): Physics and Chemistry A-level, and either Zoology or Biology A-level</p> <p>4 A-LEVELS REQUIRED: <i>Leeds</i> (3 years): Physics, Chemistry, Botany, and Zoology A-level <i>Manchester</i>: admission normally only after completion of 2nd M.B.</p>
Bacteriology Honours	B.Sc.	<p>2 A-LEVELS REQUIRED: <i>Leeds</i> (4 years): Physics and Chemistry A-level</p> <p>3 A-LEVELS REQUIRED: <i>Birmingham</i>: Chemistry A-level and either Botany, Zoology, or Biology A-level <i>Liverpool</i> (3 or 4 years): Chemistry A-level required and either Botany, Zoology, or Biology A-level preferred; Physics and/or Mathematics O-level advisable <i>Newcastle</i> (i) 3 years: 3 of the following preferred at A-level: Physics, Botany, Chemistry, Zoology, or Biology; (ii) 4 years: no further special requirements * Biology may not be included with Botany or Zoology.</p>
Biochemistry	B.Sc.	3 A-LEVELS INCLUDING CHEMISTRY REQUIRED:

(Most universities require some biological knowledge, at least to O-level)
Birmingham: 2 of the following A-levels required: any mathematics subject..

Physics, Biology (or Zoology or Botany)

Bristol, Manchester: Physics A-level required and either a mathematics subject or Botany or Zoology or Biology A-level

Hull: no further special requirements

Leeds (4 years): 2 of the following A-levels required: Pure and Applied Mathematics (or Mathematics-for-Science), Physics, Botany, Zoology, or Biology; Physics and Mathematics O-level

Liverpool: Physics A-level required and either Pure and Applied Mathematics or Botany or Zoology or Biology A-level

Reading: see Physiology Honours for Physiological Chemistry

Sheffield: 1 of the following preferred at A-level: Pure Mathematics, Mathematics-for-Science, Further Mathematics, Physics

Wales (Aberystwyth): 2 of the following preferred at A-level: a mathematics subject, Physics, Botany, Zoology, or Biology; Mathematics, Physics, and Biology at O-level

*Bangor: 2 of the following preferred at A-level: Pure and Applied Mathematics, Physics, Biology (or Zoology or Botany); Biology O-level advisable

*Cardiff: Mathematics O-level required

London (Bedford): 1 of (i) Pure and Applied Mathematics or Pure Mathematics A-level, and (ii) Physics, Botany, Zoology, or Biology A-level; Physics, English Language or Literature, and a foreign language at O-level required; (University College): Physics A-level and either Pure and Applied Mathematics or Pure Mathematics A-level required

B.Sc. Tech.
 Hons. &
 Ord.

Manchester: 2 of the following required at A-level; Pure and Applied Mathematics, Physics, Botany, Zoology, or Biology.

* Biology cannot be counted with Zoology or Botany.

Course	Degree	Requirements
Botany Honours	B.Sc.	<p>2 A-LEVELS REQUIRED: <i>Bristol:</i> 2 Science A-levels and a 3rd Mathematics or Science O-level; Mathematics and Chemistry to O-level standard essential <i>Leeds</i> (4 years): no further special requirements <i>Manchester:</i> Botany A-level and either a Mathematics subject or Physics or Chemistry A-level <i>Nottingham</i> (4 years): Mathematics and Chemistry O-level if not A-level required <i>London</i> (Bedford): 2 Science A-levels required; Chemistry A-level preferred; English Language or Literature and foreign language and Mathematics and Chemistry O-level required; (Imperial): 2 Science A-levels including Chemistry A-level required; Physics and Mathematics O-level required; (Queen Mary, Royal Holloway, Westfield, Chelsea C.S.T.): 2 Science A-levels required; Chemistry A-level preferred; Mathematics and/or Physics O-level advisable</p> <p>3 A-LEVELS REQUIRED: <i>Birmingham:</i> Chemistry and either Botany or Biology A-level required <i>Durham:</i> 2 Science or Mathematics A-levels, including Botany or Biology, required; Chemistry A-level preferred <i>Exeter:</i> 3 Science A-levels including Botany A-level required; Chemistry A-level preferred; Mathematics O-level required <i>Hull:</i> 3 Science A-levels, including Chemistry, required <i>Leicester:</i> no further special requirements <i>*Liverpool</i> (3 or 4 years): Botany or Biology A-level required; 2 of the following A-levels preferred: Physics, Chemistry, or Zoology <i>Manchester:</i> Biology A-level and either Physics or Chemistry A-level required <i>*Newcastle</i> (3 or 4 years): Chemistry or Biology A-level preferred <i>Nottingham</i> (3 years): 3 Science A-levels including Chemistry and Botany or Biology A-level required; Pure and Applied Mathematics A-level preferred; Mathematics O-level required <i>Reading:</i> Chemistry and Botany A-level required <i>Sheffield:</i> Chemistry A-level, Mathematics O-level required</p>

Southampton: 3 Science A-levels including Chemistry and either Botany or Biology; Mathematics O-level

Wales (Aberystwyth): Botany or Biology A-level required; Chemistry A-level preferred; Chemistry and Mathematics O-level required; Physics O-level advisable; (Bangor): 3 Science A-levels including Chemistry and either Botany or Biology A-level; Mathematics O-level; (Cardiff): Chemistry and Botany A-level; Mathematics O-level; (†Swansea): Botany or Biology A-level required; Chemistry, A-level preferred; Chemistry or Chemistry with Physics O-level required

London (†King's): 3 Science A-levels including Chemistry required and 1 of (i) a mathematics subject or Physics or Zoology A-level and (ii) either Botany or Biology A-level; English Language O-level required; a foreign language, Mathematics and/or Physics O-level advisable; (University College): 3 Science A-levels including Chemistry required; Mathematics and/or Physics O-level advisable

3 A-LEVELS PREFERRED:

Leeds (3 years): Chemistry A-level required and 1 of (a) Pure Mathematics or Physics, and 1 of (b) Botany or Biology

* Biology not to be counted with Botany or Zoology.

† Biology cannot be counted with Zoology.

B.Sc.

Chemistry
Honours

2 A-LEVELS REQUIRED:

Nottingham (4 years): Mathematics, Physics, and Chemistry O-level, if not A-level

Leeds: (i) Colour Chemistry course and Textile Chemistry course: Chemistry A-level and 1 of: Pure and Applied Mathematics, Physics, Mathematics-for-Science A-level; (ii) Agricultural Chemistry course (4 years): Physics and Chemistry A-level

3 A-LEVELS REQUIRED:

Newcastle (4 years): no further special requirements

Course	Degree	Requirements
Chemistry Honours (<i>cont'd</i>)		<p>3 A-LEVELS INCLUDING CHEMISTRY REQUIRED:</p> <p><i>Birmingham:</i> Physics A-level and either Pure and Applied Mathematics, or Pure Mathematics, or Applied Mathematics A-level (Biology occasionally acceptable instead of Physics or Mathematics)</p> <p><i>Bristol:</i> Physics A-level and either Pure and Applied Mathematics, Botany, Zoology, or Biology A-level</p> <p><i>Durham:</i> 2 passes required in Mathematics or Science subjects A-level for 3-year course</p> <p><i>Exeter:</i> 3 Science A-levels; either Pure and Applied Mathematics, Pure Mathematics, or Mathematics-for-Science A-level</p> <p><i>Hull and Sheffield:</i> 3 Science A-levels; Physics or Pure and Applied Mathematics A-level</p> <p><i>Leeds:</i> Physics and 1 of Pure and Applied Mathematics, Pure Mathematics, Pure Mathematics with Statistics or Mathematics-for-Science A-level required</p> <p><i>Leicester:</i> Pure and Applied Mathematics or Pure Mathematics A-level</p> <p><i>Liverpool:</i> (3 or 4 years depending on A-level performance): Physics and a mathematics subject A-level</p> <p><i>Manchester:</i> requirements as for Leeds Chemistry course (i)</p> <p><i>Newcastle:</i> (3 years): Physics and Pure and Applied Mathematics (single or double subject)</p> <p><i>Nottingham:</i> 3 Science A-levels; Pure and Applied Mathematics A-level preferred</p> <p><i>Reading:</i> Physics A-level and either Pure and Applied Mathematics or Mathematics-for-Science A-levels</p> <p><i>Southampton:</i> 3 Science A-levels; Physics A-level; Mathematics O-level</p> <p><i>Wales (Aberystwyth):</i> a mathematics subject A-level required; Physics A-level preferred; Mathematics O-level; (Bangor): 1 of Physics or any mathematics subject A-level required and preferably Botany, Biology, or Zoology A-level; (Cardiff): a mathematics subject (exceptionally Biology considered) A-level preferred; Mathematics O-level required; (Swansea): Physics, and Pure and</p>

Applied Mathematics A-level preferred
London (Bedford, Royal Holloway, Westfield): *either* (i) Physics and 1 of Pure and Applied Mathematics or Pure Mathematics or Applied Mathematics A-level; and Mathematics, English Language or Literature and a foreign language O-level, *or* exceptionally (ii) 1 of Pure and Applied Mathematics, Pure Mathematics, Applied Mathematics, Physics, and 1 of Biology, Botany, Zoology, or Geology A-level; O-level Physics or a mathematics subject which has not been passed at A-level; (Birkbeck, Imperial): Physics and one of Pure and Applied Mathematics, Pure Mathematics, Applied Mathematics A-level; (King's): Physics A-level and either Pure and Applied Mathematics or Pure Mathematics A-level; English Language and foreign language O-level advisable; (Queen Mary and University College): Physics A-level and either Pure and Applied Mathematics or Pure Mathematics A-level; (Battersea C.T., Chelsea C.S.T., Northern Polytechnic, Sir John Cass College, West Ham C.T., and Woolwich Polytechnic): no further special requirements

B.Sc. Tech.

Manchester: (i) Chemistry course: 3 A-levels including Chemistry and 2 of the following A-levels: any mathematics subject (except Applied Mathematics), Physics, Botany, Zoology, Biology; Mathematics O-level if not A-level; (ii) Polymer Chemistry: 3 A-levels including Physics and Chemistry and any Mathematics subject except Applied Mathematics

Geology Honours

B.Sc.

2 A-LEVELS REQUIRED:

Bristol: 2 A-levels required from the following list: Pure and Applied Mathematics, Physics, Chemistry, Botany, Zoology, Biology, Geology (or Geography); 3rd mathematics or Science subject O-level; knowledge of Mathematics essential

Leeds (4 years): 2 of following at A-level preferred: Pure and Applied Mathematics (or Mathematics-for-Science) and Physics, Chemistry, Biology, Geology (or Geography)

Course	Degree	Requirements
Geology Honours (<i>contd.</i>)		<p><i>Leicester</i>: Geology and Geography A-level preferred</p> <p><i>Nottingham</i> (4 years): Mathematics, Physics and Chemistry O-level if not A-level</p> <p><i>Wales</i> (Aberystwyth): A-levels to include 1 of the following: Physics, Chemistry, Zoology, Geology or Geography; Mathematics O-level required</p> <p><i>London</i> (Bedford): 2 Science A-levels; Mathematics, English Language or Literature and a foreign language O-level; (Birkbeck, 4 years): 2 Science A-levels; Geology A-level; Mathematics O-level required; (Queen Mary, Chelsea C.S.T.): Science A-levels; Mathematics O-level</p> <p>3 A-LEVELS REQUIRED:</p> <p><i>Birmingham</i>: 2 Science A-levels and either General Studies or Geography or approved Science subject A-level; Physics, Chemistry O-level</p> <p><i>Durham</i>: 2 Mathematics or Science A-levels including Physics or Chemistry</p> <p><i>Exeter</i>: 3 Science A-levels; Mathematics O-level</p> <p><i>Hull</i>: 3 Science A-levels preferred</p> <p><i>Leeds</i> (3 years): Physics, Chemistry, and Pure and Applied Mathematics A-level (or Mathematics-for-Science)</p> <p><i>Liverpool</i> (3 or 4 years): 2 A-levels preferred from the following: Pure and Applied Mathematics, Physics, Chemistry, Botany, Zoology, or Biology; Chemistry O-level advisable</p> <p><i>Manchester</i>: 3 Science A-levels including 1 of Physics, Chemistry, Zoology, Biology; Chemistry O-level required</p> <p><i>Newcastle</i> (i) (3 years): Geology A-level required; 2 of the following preferred: Pure and Applied Mathematics, Physics, Chemistry, Botany, Zoology, or Biology; Mathematics O-level required; (ii) (4 years): for those without Geology A-level: 2 of the preferred list of subjects in 3-year course; Mathematics, Physics and/or Chemistry O-level</p> <p><i>Nottingham</i>: 3 A-levels preferred from the following: Pure and Applied Mathematics, Physics, Chemistry, Botany, Zoology; Mathematics, Physics, Chemistry,</p>

been taken to A-level

Reading: 2 A-levels required from the following: Pure and Applied Mathematics (or Mathematics-for-Science), Physics, Chemistry, Zoology (or Biology)
Sheffield: (i) Chemistry A-level preferred and 2 of the following A-levels required: a mathematics subject, a Science subject and either Geography or Geography; or (ii) any mathematics subject, Physics and Chemistry A-level required
Souhampton: 3 Science A-levels (2 a possibility); Mathematics O-level required
Wales (Cardiff): Mathematics O-level; (Swansea): 3 A-levels from the following: a mathematics subject, a Science subject or Geography or Geology
London (Imperial): (i) Geology course: 3 Science A-levels (2 Science A-levels possible) including 3 of the following: a mathematics subject, Physics, Chemistry, Zoology (or Biology), Geology; Mathematics O-level required; (ii) Mining Geology course: 3 Science A-levels (2 Science A-levels and Mathematics O-level possible); Chemistry A-level and either Pure and Applied Mathematics or Pure Mathematics A-level required; Geology or Physics A-level preferred; (iii) Oil and Technology course: 3 Science A-levels including Physics and Chemistry and either Pure and Applied Mathematics or Pure Mathematics A-level required; (King's): 3 Science A-levels preferred; Mathematics O-level required; English Language and a foreign language O-level advisable; (University College): 3 of the following required: Pure and Applied Mathematics (or Pure Mathematics), Physics, Chemistry, Zoology, or Geology; Mathematics O-level

2 A-LEVELS REQUIRED:

Manchester: (i) Pure and Applied Mathematics and Further Mathematics required A-level (or possibly Physics); or (ii) Pure Mathematics and Applied Mathematics A-level (or possibly Physics); or (iii) Physics and Pure Mathematics with Statistics (or Mathematics-for-Science)
Exeter: (i) Pure Mathematics and Applied Mathematics A-level; or (ii) Pure and Applied Mathematics and Further Mathematics A-level; or (iii) Mathematics-for-Science and Further Mathematics A-level

Mathematical
Honours

B.Sc. Hons.

B.Sc.

Course	Degree	Requirements
Mathematical Honours (contd.)		<p><i>Nottingham</i> (4 years): Mathematics and Physics O-level</p> <p><i>Southampton</i>: Pure Mathematics and Applied Mathematics A-level required (or Mathematics and Further Mathematics)</p> <p><i>Wales</i> (Aberystwyth): (i) Pure Mathematics course: Pure and Applied Mathematics or Pure Mathematics A-level required; (ii) Applied Mathematics course: 2 mathematics subjects or Physics A-level preferred; (iii) Mathematics course: 2 mathematics subjects or Physics A-level preferred</p> <p><i>London</i> (Bedford): Pure Mathematics and Applied Mathematics A-level required; English Language or Literature and foreign language O-level required; (Birkbeck): Pure Mathematics A-level required; Applied Mathematics A-level (or Physics) preferred; (Imperial): Pure Mathematics and Applied Mathematics A-level; Physics O-level; (Queen Mary): Pure Mathematics and Applied Mathematics A-level; (Queen Elizabeth, University College, Westfield, Chelsea C.S.T., Northern Polytechnic, Sir John Cass College and Woolwich Polytechnic): Pure Mathematics and either Applied Mathematics or Physics; A-level</p> <p><i>Hull</i>: (i) 2 A-levels including either (a) Pure and Applied Mathematics and Further Mathematics or (b) Pure Mathematics and Applied Mathematics (or Pure Mathematics with Statistics) or a similar A-level qualification</p> <p>(ii) 2 A-levels including Pure Mathematics and Applied Mathematics A-level or a similar qualification</p> <p><i>Manchester</i>: 2 Science A-levels including any mathematics subject except Mathematics-for-Science or Further Mathematics</p> <p>3 A-LEVELS REQUIRED:</p> <p><i>Birmingham</i>: Pure and Applied Mathematics or Pure Mathematics or Applied Mathematics and a Science A-level required</p> <p><i>Bristol</i>: Pure Mathematics and Applied Mathematics A-level required; Physics A-level preferred</p>
	B.Sc. Spec.	
	B.Sc. Joint	
	B.Sc. Tech. Ord.	
	B.Sc.	

Durham: Pure Mathematics and Applied Mathematics

separate subject) and Physics A-level required

Leeds (3 or 4 years): Pure and Applied Mathematics and Further Mathematics A-level required (Pure Mathematics and Applied Mathematics acceptable); Physics and modern foreign language O-level advisable; (4 years): either Pure and Applied Mathematics or Mathematics-for-Science A-level required; knowledge of Physics and modern foreign language to O-level

Leicester: Pure Mathematics and either Applied Mathematics or Physics A-level
Liverpool (3 or 4 years): Physics and a mathematics subject A-level required; Applied Mathematics or Further Mathematics A-level preferred

Newcastle (3 years): Physics A-level preferred; Pure and Applied Mathematics or Pure Mathematics A-level required; (4 years): no further special requirements

Nottingham (3 years): Pure Mathematics and Applied Mathematics A-level required (acceptable as a single subject)

Reading: Pure Mathematics and Applied Mathematics and either Physics or Geography A-level

Sheffield: Pure Mathematics and Applied Mathematics A-level required; Physics A-level preferred

Wales (Bangor): (i) Pure Mathematics Honours: Pure and Applied Mathematics or Pure Mathematics A-level required; (ii) Pure and Applied Mathematics Joint Honours: 3 Science A-levels required; Pure Mathematics or Applied Mathematics A-level preferred; (Cardiff): Pure Mathematics preferred or 1 of the following: Pure Mathematics with Statistics, Pure and Applied Mathematics A-level (the latter is unlikely to qualify for Honours course); (Swansea): 1 of the following required: Pure Mathematics and Applied Mathematics (preferred), or Pure and Applied Mathematics or Mathematics with Statistics A-level; French or German or Russian O-level

London (King's): 3 Science A-levels including Pure Mathematics and Applied Mathematics A-level required; Physics A-level preferred; English Language and a foreign language O-level required

<i>Course</i>	<i>Degree</i>	<i>Requirements</i>
Mathematical Honours (<i>contd</i>)	B.Sc. Tech. Honours B.Sc.	<i>Manchester</i> : 3 Science A-levels, including Physics and any 2 mathematics subjects, except Mathematics-for-Science, required 3 A-LEVELS PREFERRED: <i>London</i> (Royal Holloway): Pure Mathematics and either Applied Mathematics or Physics A-level required
Mathematics and Philosophy Honours	B.A.	2 A-LEVELS REQUIRED: <i>Bristol</i> and <i>Southampton</i> : Pure Mathematics A-level <i>Hull</i> : either Pure Mathematics or Applied Mathematics A-level required <i>Liverpool</i> and <i>York</i> : Pure and Applied Mathematics A-level <i>Manchester</i> : (i) Pure and Applied Mathematics and Further Mathematics A-level; or (ii) Pure Mathematics and Applied Mathematics A-level required <i>Nottingham</i> : Pure Mathematics and Applied Mathematics A-level
	B.Sc.	3 A-LEVELS REQUIRED: <i>Birmingham</i> : including either Pure and Applied, or Pure or Applied Mathematics A-level <i>Sheffield</i> : Pure Mathematics, Applied Mathematics or Pure and Applied Mathematics, and a foreign language A-level <i>Hull</i> : as for B.A. <i>Manchester</i> : as for B.A. <i>Nottingham</i> : 3 A-levels including Pure Mathematics and Applied Mathematics
Microbiology Honours	B.Sc.	2 A-LEVELS REQUIRED: <i>Bristol</i> : 1 of (a) Pure and Applied Mathematics, Physics or Chemistry A-level; and 1 of (b) either Botany, Zoology, or Biology A-level; 3rd mathematics or Science subject O-level 3 A-LEVELS REQUIRED: <i>Birmingham</i> : 2 Science A-levels including preferably 2 of any mathematics subject or Physics or Chemistry A-level

Reading: Chemistry A-level, and either Botany, Zoology, or Biology A-level required; Physics A-level preferred
Wales (Cardiff): Chemistry and either Botany or Biology A-level; Mathematics O-level
London (Queen Elizabeth): 3 Science A-levels including Chemistry A-level and 1 of (a) Pure and Applied Mathematics, Pure Mathematics or Physics A-level; and 1 of (b) Botany, Zoology, or Biology A-level required; Mathematics O-level if not A-level; (University College): 3 Science A-levels including Chemistry A-level required; either Physics or a biological subject O-level advisable

Pharmacy

B.Sc. Hons.
B.Pharm.

2 A-LEVELS REQUIRED:

Leeds (4 years): Chemistry A-level preferred
Nottingham (4 years): Mathematics, Physics, Chemistry O-level if not A-level required
Wales (Cardiff, 4 years): Mathematics O-level required

3 A-LEVELS REQUIRED:

Leeds (3 years): Physics, Chemistry, and either Zoology or Biology required
Manchester (Honours 4 years; Ordinary 3 years): Physics, Chemistry, and one of Botany, Zoology, or Biology required; Mathematics O-level advisable
Nottingham: 3 Science A-levels including Physics and Chemistry and one of Botany, Zoology, Biology (or exceptionally Mathematics)
Wales (Cardiff): Physics, Chemistry, Biology A-level (or Botany and Zoology); Mathematics O-level required

London (School of Pharmacy, Chelsea C.S.T.): Physics, Chemistry and one of Zoology, Botany, Biology A-level required; Mathematics O-level advisable

PHARMACOLOGY

Leeds: (i) (4 years): 2 A-levels; Chemistry A-level preferred; (ii) (3 years): 3 A-levels including Physics, Chemistry, and either Zoology or Biology
Liverpool: 3 A-levels including Physiology, Chemistry, and one of Zoology, Botany, Biology

B. Pharm.
Hons.

B.Sc. Hons.

Course	Degree	Requirements
Pharmacy (<i>contd</i>)		<p>MEDICAL BIOCHEMISTRY <i>Birmingham</i>: 3 A-levels including Physics, Chemistry, and one of Botany, Zoology, Biology</p>
Physics Honours	<p>B.Sc. Tech. Hons. and Ord. B.Sc.</p>	<p><i>Manchester</i>: 3 A-levels; Physics A-level and 1 of Pure and Applied Mathematics or Pure Mathematics or Chemistry A-level</p> <p>2 A-LEVELS INCLUDING PHYSICS REQUIRED: <i>Bristol</i>: Pure and Applied Mathematics or Pure Mathematics; 3rd mathematics or Science subject at O-level; Chemistry to O-level <i>Exeter</i>: either Pure and Applied Mathematics, Pure Mathematics or Mathematics-for-Science A-level <i>Hull</i>: either Pure or Applied or Pure and Applied Mathematics A-level <i>Leeds</i>: Pure and Applied Mathematics A-level preferred; Chemistry O-level advisable <i>Manchester</i>: any mathematics subject except Applied Mathematics <i>Nottingham</i>: Mathematics and Physics O-level if not A-level <i>London</i> (University College): Physics A-level and either Pure and Applied Mathematics or Pure Mathematics A-level; Chemistry O-level advisable</p>
		<p>3 A-LEVELS INCLUDING PHYSICS REQUIRED: <i>Birmingham</i>: Pure and Applied Mathematics or Pure Mathematics A-level <i>Durham</i>: either Pure or Applied or Pure and Applied Mathematics A-level <i>Leicester</i>: 3 A-levels including Physics, and 1 of Pure and Applied Mathematics or Pure Mathematics; Applied Mathematics O-level if not A-level <i>Liverpool</i> (3 or 4 years): any mathematics subject A-level <i>Newcastle</i> (3 years): either Pure or Applied or Pure and Applied Mathematics A-level or Pure Mathematics with Statistics A-level; (4 years): no further special requirements <i>Nottingham</i> (3 years): 3 Science A-levels including Physics and 1 of Pure and</p>

Applied Mathematics, Pure Mathematics, required; Applied Mathematics and Chemistry A-level preferred

Reading: (i) Pure Mathematics and Applied Mathematics A-level; or (ii) Pure and Applied Mathematics or Mathematics-for-Science A-level; or (iii) Pure Mathematics A-level; Applied Mathematics O-level

Sheffield: 3 Science A-levels including 1 of Pure and Applied Mathematics or Mathematics-for-Science A-level required

Southampton: 3 Science A-levels; including any mathematics subject A-level.

The 3rd subject should not be Mathematics if 2nd is Pure and Applied Mathematics or Mathematics-for-Science

Wales (Aberystwyth): either Pure or Applied or Pure and Applied Mathematics or Pure Mathematics with Statistics A-level; (Bangor): 3 Science A-levels; Pure and Applied Mathematics A-level; (Cardiff): 1 of Pure and Applied Mathematics, Pure Mathematics or Mathematics with Statistics A-level; (Swansea): 1 of Pure and Applied Mathematics or Pure Mathematics A-level

3 A-LEVELS REQUIRED:

London (King's): (i) 3 A-levels including Chemistry and Pure and Applied Mathematics A-level; English and foreign language O-level advisable; or (ii) 3 A-levels including Pure Mathematics and Physics and either Applied Mathematics or Chemistry; Applied Mathematics and Chemistry at O-level if not at A-level; English Language and foreign language O-level advisable; (Birkbeck, Imperial, Queen Mary, Royal Holloway, Westfield, Battersea C.T., Chelsea C.S.T., Northern Polytechnic, Sir John Cass College, West Ham C.T., Woolwich Polytechnic): (i) (a) Physics, Pure and Applied Mathematics, Chemistry A-level, or exceptionally (b) Physics, Chemistry, Pure Mathematics A-level; Applied Mathematics O-level; (c) Physics, Pure Mathematics, Applied Mathematics A-level; Chemistry O-level; (ii) Physics, Pure Mathematics, and either Applied Mathematics or Chemistry A-level; Applied Mathematics, Chemistry O-level if not at A-level; (iii) Pure and Applied Mathematics, Physics A-level; Chemistry O-level; (Bedford): same requirements as Birkbeck, and English Language or Literature O-level and a foreign language O-level

<i>Course</i>	<i>Degree</i>	<i>Requirements</i>
Physiology Honours	B.Sc.	<p>2 A-LEVELS REQUIRED: <i>Bristol:</i> Chemistry and either Zoology or Biology A-level required; 3rd Science or Mathematics subject O-level <i>Leeds</i> (4 years): Physics and Chemistry A-level preferred <i>Sheffield:</i> Chemistry A-level required; Pure and Applied Mathematics or Physics A-level preferred</p> <p>3 A-LEVELS INCLUDING CHEMISTRY REQUIRED: <i>Birmingham:</i> 1 of (a) any mathematics subject or Physics A-level; and 1 of (b) Zoology or Biology A-level required <i>Leeds</i> (3 years): Physics, Zoology A-level <i>Liverpool</i> (3 or 4 years): Physics A-level and either Zoology or Biology A-level <i>Manchester:</i> 2 of the following A-levels; Pure and Applied Mathematics, Physics, Zoology, or Biology; Physics O-level required <i>Newcastle</i> (3 years): Zoology or Biology A-level required; Physics A-level preferred; (4 years): no further special requirements <i>Reading:</i> 1 of Botany, Zoology, or Biology required; Physics A-level preferred</p>
Joint Physiology and Psychology Honours	B.Sc.	<p><i>Nottingham:</i> Pure and Applied Mathematics A-level required (or exceptionally either Zoology or Biology) <i>Southampton:</i> 3 Science A-levels; Mathematics O-level required <i>Wales</i> (Cardiff): Physics A-level preferred; Mathematics O-level required <i>London</i> (Bedford): Physics A-level and either Pure and Applied Mathematics or Pure Mathematics A-level; (Biology or Botany or Zoology may be acceptable in lieu of any one of these, in which case the subject must be passed at O-level); English Language or Literature and foreign language O-level; (University College): Physics and 1 of Pure and Applied Mathematics, Pure Mathematics, Botany, Zoology, Biology; Pure Mathematics O-level if not A-level; (Chelsea C.S.T.): Physics and 1 of Pure and Applied Mathematics, Pure Mathematics A-level</p>

Psychology and Allied Subjects Honours	B.Sc.
2 A-LEVELS REQUIRED: <i>Bristol</i> : 2 Science A-levels and a 3rd mathematics or Science subject O-level <i>Hull</i> : no further special requirements <i>Exeter</i> : 2 A-levels required from following: Pure and Applied Mathematics, Physics, Zoology, or Biology; Mathematics O-level required <i>Leeds</i> (4 years): 2 A-levels required from following: Pure and Applied Mathematics (or Mathematics-for-Science), Physics, Chemistry, Zoology; Mathematics O-level required <i>Wales</i> (Cardiff): Mathematics O-level required <i>London</i> (Bedford): 2 Science A-levels; Mathematics, English Language or Literature and a foreign language O-level required; (Birkbeck and University College): 2 Science A-levels <i>Durham</i> and <i>Hull</i> : no further special requirements <i>Liverpool</i> : Latin, Greek, or Mathematics O-level <i>Nottingham</i> : Mathematics O-level <i>Reading</i> : Mathematics and Biology O-level advisable <i>Sheffield</i> : See below B.A. Econ. <i>Wales</i> (Cardiff): Mathematics O-level advisable <i>London</i> (Bedford, Birkbeck, and University College): 2 foreign languages O-level (1 classical)	B.A.
3 A-LEVELS REQUIRED: <i>Durham</i> : 2 Science or mathematics A-levels <i>Leicester</i> : no further special requirements <i>Manchester</i> : 2 Science A-levels; Mathematics and Chemistry O-level <i>Liverpool</i> (3 or 4 years): 3 A-levels; 2 of: (i) Pure and Applied Mathematics, Physics, or Chemistry and 1 of (ii) Zoology or Biology <i>Nottingham</i> : 3 Science A-levels; Pure and Applied Mathematics A-level required <i>Reading</i> : (i) Physics and either Mathematics-for-Science or Pure and Applied Mathematics A-level; or (ii) Chemistry, Botany, Zoology A-level <i>Wales</i> (Cardiff): Mathematics O-level advisable	B.Sc.
B.Sc. Econ.	B.Sc. Econ.

Course	Degree	Requirements
Psychology and Allied Subjects Honours (<i>contd</i>)	B.Com. B.Soc. Sc. B.A. Econ. B.A.	<i>Birmingham</i> : 3 A-levels at the same sitting; Mathematics O-level <i>Sheffield</i> : 2/3 A-levels, preferably Biology and a mathematics subject <i>Manchester</i> : Mathematics O-level required; modern foreign language and a Science O-level (preferably Biology or Physics) advisable <i>Leicester</i> : no further special requirements
Zoology Honours	B.Sc.	2 A-LEVELS REQUIRED: <i>Bristol</i> (2 Science A-levels) and <i>Durham</i> : 3rd mathematics or Science O-level; knowledge of Chemistry and Mathematics to O-level essential <i>Leeds</i> (4 years): no further special requirements <i>Nottingham</i> (4 years): Mathematics and Chemistry O-level if not A-level <i>London</i> (Bedford, 2 Science A-levels): Zoology or Biology A-level preferred; English Language or Literature, a foreign language and Mathematics O-level; Chemistry at least to O-level; (Royal Holloway, Chelsea C.S.T.): 2 Science A-levels; Zoology or Biology A-level preferred; Mathematics O-level required; (Queen Mary): 2 Science A-levels; Zoology A-level; Mathematics O-level required; (University College and Westfield): 2 Science A-levels; Mathematics O-level 3 A-LEVELS REQUIRED: <i>Birmingham</i> : Zoology and Comparative Physiology course: Chemistry A-level and Zoology or Biology A-level required <i>Exeter</i> : (i) Zoology A-level and 2 of the following: Pure and Applied Mathematics, Physics, Chemistry, Botany, or Geology A-level; Mathematics O-level; (ii) Biology A-level and 2 of the following A-levels: Physics, Chemistry, or Pure and Applied Mathematics; Mathematics O-level <i>Hull</i> : (i) Chemistry and Zoology A-level and either Pure and Applied Mathematics, Physics, or Botany A-level; (ii) Chemistry and Biology A-level and either Pure and Applied Mathematics or Physics A-level

Leeds (3 years): Chemistry and 1 of (a) Pure and Applied Mathematics, Physics, Botany, or Mathematics-for-Science A-level and 1 of (b) Zoology or Biology A-level

Leicester: Zoology or Biology A-level

Liverpool (3 or 4 years): Zoology or Biology and 2 of the following preferred A-levels: Physics, Chemistry, or Botany

Manchester: Chemistry and Zoology (or occasionally Biology) A-level preferred; Chemistry and Mathematics O-level

Newcastle: (i) (a) Biology A-level and 2 of the following A-levels: Pure and Applied Mathematics, Physics, Chemistry; Mathematics O-level, or (b) Botany and Zoology and Chemistry A-level; or (ii) (4 years): no further special requirements

Nottingham: Chemistry and either Zoology or Biology A-level required; Pure and Applied Mathematics preferred as 3rd A-level, which must be a Science, preferably a mathematics subject

Reading: Zoology or Biology A-level required; Chemistry A-level preferred

Sheffield: 3 Science A-levels including Chemistry required; Zoology or Biology A-level preferred

Southampton: 3 Science A-levels including Chemistry and Zoology (or Biology) required; a 3rd A-level in any approved Science subject except Geography; Mathematics O-level required

Wales (Aberystwyth): Chemistry A-level preferred; Zoology or Biology A-level required; Chemistry and Mathematics O-level required; Physics O-level advisable; (Bangor; 3 Science A-levels): (i) Biology A-level and 2 of the following A-levels: Physics, Chemistry, Pure and Applied Mathematics; or (ii) Zoology A-level and 2 of the following A-levels: Botany, Chemistry, Physics, and Pure and Applied Mathematics; (Cardiff, 3 Science A-levels): Zoology and good Biology A-level required; Chemistry A-level preferred; Mathematics O-level required; (Swansea): Chemistry A-level preferred; Zoology or Biology A-level (or Botany) required; Chemistry or Chemistry with Physics O-level required

<i>Course</i>	<i>Degree</i>	<i>Requirements</i>
Zoology Honours (<i>contd</i>)		<p>• <i>London (Imperial)</i>: Chemistry and 1 of (a) Zoology or Biology A-level and 1 of (b) any mathematics subject (except Mathematics-for-Science and Pure Mathematics and Statistics) or Physics or Botany or Geology A-level required; Physics and Mathematics O-level required; (those without Botany A-level must have Biology A-level or Botany O-level); (King's): 3 Science A-levels: Physics and Chemistry and either Zoology or Biology A-level preferred; Mathematics O-level required; English Language and a foreign language O-level advisable</p>

Applied Science Subjects

<i>Course</i>	<i>Degree</i>	<i>Requirements</i>
Aeronautical Engineering	B.Sc.	<p><i>Bristol</i>: see requirements for Civil Engineering Honours (p. 88) <i>Manchester</i>: 3 A-levels including Pure and Applied Mathematics and Physics A-level required; 3rd A-level in a mathematics subject or, exceptionally, Chemistry</p>
	B.Sc. Eng.	<p><i>London (Imperial, Queen Mary, Northampton C.A.T.)</i>: 2 A-levels, including either Pure or Applied or Pure and Applied Mathematics, and Physics; Chemistry O-level <i>Southampton</i>: (i) 2 A-levels, either Pure or Applied or Pure and Applied Mathematics, and Physics A-level; Chemistry O-level required; or (ii) O.N.C. in approved subject with distinction in Mathematics; Chemistry O-level</p>
Marine Engineering	B.Sc.	<p>3 A-LEVELS PREFERRED: <i>Newcastle</i> (i) Pure and Applied Mathematics and Physics A-level required; Chemistry A-level preferred; Chemistry O-level required; (ii) Pure Mathematics, Applied Mathematics, and Physics A-level; Chemistry O-level</p>
	B.Eng.	<p><i>Liverpool</i> (3 or 4 years): 3 A-levels, Pure and Applied Mathematics and Physics A-level; Further Mathematics or Chemistry A-level preferred</p>

<p>Chemical Engineering Honours</p>	<p>B.Sc.</p> <p>2 A-LEVELS REQUIRED: <i>Newcastle</i> (4 years): Mathematics O-level <i>Nottingham</i> (5 years): Mathematics, Physics, and Chemistry O-level if not A-level</p> <p>3 A-LEVELS REQUIRED: <i>Birmingham</i>: Physics and Chemistry A-level and either Pure or Applied or Pure and Applied Mathematics A-level required <i>Leeds</i> (3 or 4 years): Pure and Applied Mathematics or Mathematics for-Science; Physics and Chemistry A-level <i>Manchester</i>: Pure Mathematics, Physics, Chemistry A-level <i>Newcastle and Sheffield</i>: Pure and Applied Mathematics, Physics, Chemistry A-level <i>Nottingham</i> (4 years): 3 Science A-levels; Physics and Chemistry and either (a) Pure and Applied Mathematics, or (b) Pure Mathematics A-level and Applied Mathematics O-level; 2nd foreign language O-level advisable <i>Wales</i> (Swansea): Physics and Chemistry and either Pure and Applied Mathematics or Pure Mathematics or Mathematics-for-Science A-level (Applied Mathematics A-level acceptable if Pure Mathematics O-level) <i>*London</i> (Imperial): Physics and Chemistry A-level and either Pure and Applied Mathematics or Pure Mathematics A-level; (University College, Battersea C.T., West Ham C.T.): Physics and Chemistry and either Pure Mathematics, Applied Mathematics, or Pure and Applied Mathematics A-levels</p> <p>* If one of Pure Mathematics or Applied Mathematics is offered at A-level the other must be offered at O-level.</p>
<p>B.Sc. Eng.</p>	<p>B.Sc. Eng.</p> <p>IF O.N.C. OFFERED INSTEAD OF A-LEVEL REQUIREMENTS: <i>Southampton</i>: distinction in Mathematics O.N.C. <i>Wales</i> (Cardiff): or Diploma in approved Science subject; (Swansea): English Language O-level required</p>

Course	Degree	Requirements
Civil Engineering Honours (contd)		<p>IF H.N.C. OFFERED INSTEAD OF A-LEVEL REQUIREMENTS: <i>Leeds</i>: no further special requirements <i>Wales</i> (Cardiff): or Diploma in approved Science subject; English Language O-level required</p> <p>2 A-LEVELS REQUIRED: <i>Bristol</i>: (i) Pure Mathematics and Applied Mathematics A-level; Physics O-level required; Chemistry O-level preferred; (ii) Physics and either Pure or Applied or Pure and Applied Mathematics A-level; Chemistry O-level preferred <i>Leeds</i> (3 or 4 years): (i) any mathematics subject (except Pure Mathematics with Statistics), preferably Pure and Applied Mathematics A-level and either Physics or Chemistry A-level; or (ii) H.N.C. <i>Newcastle</i>: (i) Pure and Applied Mathematics and Physics A-level; Chemistry O-level required; (ii) (4 years): Mathematics O-level required <i>Nottingham</i>: (4 years): Mathematics, Physics, Chemistry O-level if not A-level <i>Wales</i> (Swansea, 4 years): English O-level <i>Sheffield</i>: Pure and Applied Mathematics, Physics (at a high standard) A-levels <i>Southampton</i>: (i) 2 or 3 A-levels, including either Pure or Applied or Pure and Applied Mathematics, and Physics A-level; Chemistry O-level; or (ii) O.N.C. (see above) <i>London</i> (Queen Mary, Imperial, King's, University College, Battersea C.T., Northampton C.A.T., West Ham C.T., and Woolwich Polytechnic): Pure and Applied Mathematics (preferably separate subjects) and Physics A-level; Chemistry O-level <i>Wales</i> (Cardiff): (i) 2 Science A-levels; Mathematics O-level; or (ii) O.N.C. or Diploma in approved Science subject; (Swansea): 2 A-levels or O.N.C.; English Language O-level required</p> <p>3 A-LEVELS REQUIRED: <i>Birmingham</i>: Physics A-level and either Pure or Applied or Pure and Applied Mathematics A-level; Chemistry O-level preferred</p>

<p>B.Eng.</p> <p>B.Sc.</p> <p>B.Sc. Tech.</p> <p>B.Sc.</p> <p>B.Eng.</p> <p>B.Sc.</p>	<p><i>Liverpool</i> (3 or 4 years): Physics and Pure and Applied Mathematics A-level required; Chemistry or Further Mathematics A-level preferred</p> <p><i>Manchester</i>: Physics A-level and any mathematics subject except Pure Mathematics with Statistics</p> <p><i>Manchester</i>: Physics and 1 of (a) Applied Mathematics or Chemistry, and 1 of (b) Pure and Applied Mathematics or Pure Mathematics</p> <p><i>Nottingham</i>: 3 Science A-levels and (i) Pure Mathematics, Applied Mathematics and Physics A-level or (ii) Pure and Applied Mathematics, Physics, Chemistry; Chemistry or General Science or Physics with Chemistry O-level for both options</p> <p><i>Sheffield</i>: (i) Pure Mathematics, Applied Mathematics, Physics A-levels; (ii) Pure and Applied Mathematics or Mathematics can be substituted for Pure Mathematics or Applied Mathematics A-levels</p> <p><i>Wales</i> (Cardiff): (i) Physics and Chemistry and 1 of Pure and Applied Mathematics, Pure Mathematics, Pure Mathematics with Statistics, or Mathematics for Science A-level; or (ii) Pure Mathematics, Applied Mathematics, and Physics A-level; or (iii) H.N.C. or Diploma in approved Science subject; English Language O-level; (Swansea, 3 years): Physics A-level and either Pure and Applied Mathematics or Pure Mathematics A-level; English Language O-level</p>
<p>Electrical Engineering Honours.</p> <p>B.Sc. Eng.</p>	<p>IF O.N.C. OFFERED INSTEAD OF A-LEVEL REQUIREMENTS: <i>Southampton, Wales</i> (Cardiff, Swansea): see Civil Engineering Honours (p. 87)</p> <p>IF H.N.C. OFFERED INSTEAD OF A-LEVEL REQUIREMENTS: <i>Leeds, Wales</i> (Cardiff): see Civil Engineering Honours (p. 88)</p> <p>2 A-LEVELS REQUIRED: <i>Leeds</i> (3 or 4 years): Physics and any mathematics subject (except Pure Mathematics with Statistics)</p> <p><i>Manchester</i>: Physics and either Pure and Applied Mathematics or Applied Mathematics A-level</p> <p><i>Bristol, Newcastle, Nottingham</i> (4 years), <i>Wales</i> (Cardiff and Swansea), <i>London</i> (Queen Mary, Imperial, King's, University College, Battersea C.T.), <i>Northampton</i> C.A.T., <i>West Ham</i> C.T., <i>Woolwich Polytechnic</i>: see Civil Engineering Honours (p. 88)</p>

Course	Degree	Requirements
Electrical Engineering Honours (<i>contd.</i>)	B.Sc. Eng.	<i>Southampton</i> : see Civil Engineering Honours (p. 88)
	B.Sc.	3 A-LEVELS REQUIRED: <i>Birmingham</i> : Physics A-level and Pure and Applied Mathematics A-level (single or separate subject); Chemistry O-level preferred
	B.Sc. Tech.	<i>Manchester</i> : (i) any approved mathematics subject and Physics and Chemistry A-level; or (ii) Pure Mathematics, Applied Mathematics, and either Physics or Chemistry A-level
	B.Sc.	<i>Wales</i> (Bangor): Physics and a mathematics subject A-level; Chemistry to O-level required
	B.Eng.	<i>Nottingham</i> : see Civil Engineering Honours (p. 88) <i>Liverpool and Sheffield</i> : see Civil Engineering Honours (pp. 88-9)
Mechanical Engineering Honours	B.Sc. Eng.	IF O.N.C. OFFERED INSTEAD OF A-LEVEL REQUIREMENTS: <i>Southampton, Wales</i> (B.Sc.) (Cardiff and Swansea): see Civil Engineering Honours (p. 87)
	B.Sc.	IF H.N.C. OFFERED INSTEAD OF A-LEVEL REQUIREMENTS: <i>Leeds, Wales</i> (Cardiff): see Civil Engineering Honours (p. 88)
		2 A-LEVELS REQUIRED: <i>Leeds</i> (3 or 4 years): any mathematics subject (except Pure Mathematics with Statistics and Further Mathematics) and either Physics or Chemistry A-level
	B.Sc. Tech.	<i>Leicester</i> : Physics and either Pure or Applied or Pure and Applied Mathematics or Mathematics-for-Science A-level
	B.Sc.	<i>Manchester</i> : (i) Pure Mathematics and Applied Mathematics A-level; Physics O-level required; Chemistry O-level advisable; or (ii) Physics and either Pure and Applied Mathematics or Pure Mathematics A-level; Chemistry O-level advisable <i>Nottingham</i> (4 years): Mathematics, Physics, Chemistry O-level if not A-level <i>Bristol, Wales</i> (Cardiff and Swansea), <i>London</i> (Queen Mary, Imperial, King's, University College, Battersea C.T., Northampton C.A.T., West Ham C.T., Woolwich Polytechnic): see Civil Engineering Honours (p. 88)

<p>B.Sc. Eng.</p> <p>B.Sc.</p>	<p><i>Southampton: see Civil Engineering Honours (p. 88)</i></p> <p>3 A-LEVELS REQUIRED: <i>Leeds</i> (3 years): either Pure or Applied or Pure and Applied Mathematics or Further Mathematics and either Physics or Chemistry A-level <i>Newcastle:</i> (i) Pure and Applied Mathematics and Physics A-level required; Chemistry A-level preferred; Chemistry O-level required; or (ii) Pure Mathematics, Applied Mathematics, Physics A-level required; Chemistry O-level required <i>Birmingham, Nottingham, Manchester, Wales</i> (Cardiff and Swansea): <i>see Civil Engineering Honours (p. 89)</i> <i>Liverpool, Sheffield: see Civil Engineering Honours (p. 89)</i></p>
<p>Metallurgy Honours</p> <p>B.Sc.</p>	<p>IF O.N.C. OFFERED INSTEAD OF A-LEVEL REQUIREMENTS: <i>Wales</i> (Cardiff, 4 years): or Diploma in approved subject; (Swansea, 4 years): O.N.C. in approved subject and industrial experience</p> <p>IF H.N.C. OFFERED INSTEAD OF A-LEVEL REQUIREMENTS: <i>Wales</i> (Cardiff, 3 years): or Diploma in approved subject and English Language at O-level; (Swansea, 3 years): industrial experience</p> <p>2 A-LEVELS REQUIRED: <i>Nottingham</i> (4 years): Mathematics, Physics, and Chemistry O-level if not A-level <i>Wales</i> (Cardiff, 4 years): (i) Mathematics O-level; or (ii) O.N.C. or O.N.D.</p> <p>3 A-LEVELS REQUIRED: <i>Birmingham:</i> Physics, Chemistry, Pure and Applied Mathematics, or Pure Mathematics or Applied Mathematics <i>Leeds:</i> Physics, Chemistry, and either Pure and Applied Mathematics or Mathematics-for-Science</p>

<i>Course</i>	<i>Degree</i>	<i>Requirements</i>
Metallurgy Honours (<i>contd</i>)		<p><i>Liverpool</i>: Physics, Chemistry, and any mathematics subject except Further Mathematics</p> <p><i>Manchester</i>: Pure and Applied Mathematics, Physics, Chemistry</p> <p><i>Newcastle</i>: Physics, Chemistry, and either (a) Pure and Applied Mathematics or (b) Pure Mathematics A-level and Applied Mathematics O-level or (c) Applied Mathematics A-level and Pure Mathematics O-level</p> <p><i>Nottingham</i>: Physics, Chemistry, and either Pure and Applied Mathematics or Pure Mathematics A-level</p> <p><i>Reading</i> (Physical Properties of Materials course): Physics, Chemistry, and either (a) Pure and Applied Mathematics; or (b) Pure Mathematics A-level and Applied Mathematics O-level</p> <p><i>Wales</i> (Cardiff): (i) Physics and Chemistry and either Pure and Applied Mathematics, Pure Mathematics with Statistics or Mathematics-for-Science A-level; or (ii) Pure Mathematics, Applied Mathematics, and Physics A-level; or (iii) H.N.C. or H.N.D. (<i>see above</i>); (Swansea): (i) Physics and Chemistry A-level and either Pure and Applied Mathematics, Pure Mathematics or Pure Mathematics with Statistics A-level; English Language O-level; or (ii) O.N.C. or H.N.C. (<i>see above</i>)</p> <p><i>Liverpool</i> (3 or 4 years): Pure and Applied Mathematics, Physics, Chemistry A-levels</p> <p><i>London</i> (Imperial, Battersea C.T., Sir John Cass College): 3 A-levels. <i>See Newcastle B.Sc. above</i></p> <p><i>Manchester</i>: 3 A-levels. <i>See Newcastle B.Sc. above</i></p> <p><i>Sheffield</i>: Physics, Chemistry, and either mathematics-for-Science or Pure and Applied Mathematics or occasionally any mathematics subject</p>
Mining and Minerals Engineering	B.Sc.	<p>IF O.N.C. OFFERED INSTEAD OF A-LEVEL REQUIREMENTS: <i>Wales</i> (Cardiff, 4 years): or Diploma in approved subject</p> <p>IF H.N.C. OFFERED INSTEAD OF A-LEVEL REQUIREMENTS: <i>Wales</i> (Cardiff, 3 years): or Diploma in approved subject and English Language O-level</p>

B.Eng.	<p>2 A-LEVELS REQUIRED: MINING <i>Sheffield</i>: 2 or 3 A-levels; either Pure or Applied or Pure and Applied Mathematics, and Physics A-level <i>Wales</i> (Cardiff) ((i) 4 years): Mathematics O-level required; or (ii) H.N.C. or H.N.D. (<i>see above</i>) <i>London</i> (Imperial): Physics and either Pure or Applied or Pure and Applied Mathematics A-levels; Chemistry O-level</p>
B.Sc.	
B.Sc. Eng.	
B.Sc.	<p>MINING ENGINEERING <i>Newcastle</i>: (i) Pure and Applied Mathematics and Physics A-level; Chemistry O-level; (ii) (4 years): Mathematics O-level required <i>Nottingham</i> (4 years): Chemistry, Mathematics, and Physics O- if not A-level</p>
	<p>3 A-LEVELS REQUIRED: MINING <i>Wales</i> (Cardiff): (i) Physics, Chemistry, and either Pure and Applied Mathematics, Pure Mathematics or Pure Mathematics with Statistics or Mathematics-for-Science A-level; or (ii) Pure Mathematics, Applied Mathematics, Physics A-level</p>
	<p>MINING ENGINEERING <i>Newcastle</i>: Pure Mathematics, Applied Mathematics, Physics A-level; Chemistry O-level <i>Nottingham</i>: (i) 3 Science A-levels including Pure Mathematics, Applied Mathematics, and Physics A-level; Chemistry or General Science or Physics with Chemistry O-level; or (ii) Physics, Chemistry, Pure and Applied Mathematics A-level; (iii) H.N.C. or H.N.D. (<i>see above</i>)</p>
	<p>MINING AND APPLIED MINERAL SCIENCES <i>Leeds</i> (3 or 4 years): Physics, Chemistry, and 1 of Pure and Applied Mathematics or Applied Mathematics or Pure Mathematics A-level</p>

<i>Course</i>	<i>Degree</i>	<i>Requirements</i>
Mining and Minerals Engineering (<i>contd</i>)		MINERAL ENGINEERING <i>Birmingham</i> : Physics, Chemistry, and 1 of Pure and Applied Mathematics or Applied Mathematics or Pure Mathematics A-level
	B.Sc. Eng.	MINERAL TECHNOLOGY <i>London (Imperial)</i> : Physics, Chemistry, and either (a) Pure and Applied Mathematics A-level or (b) Pure Mathematics A-level and Applied Mathematics O-level; or (c) Applied Mathematics A-level and Pure Mathematics O-level

Other Science Subjects

<i>Course</i>	<i>Degree</i>	<i>Requirements</i>
Agriculture, Horticulture, and Dairying	B.Sc. Hons.	2 A-LEVELS REQUIRED: * <i>Leeds</i> (4 years): 2 of the following preferred at A-level: Physics, Chemistry, Botany, Zoology, Biology, Mathematics-for-Science * <i>Newcastle</i> (4 years): 2 Science A-levels preferred * <i>Nottingham</i> (4 years): Mathematics and Chemistry O-level if not A-level <i>Reading</i> (3 or 4 years): preferably 2 of the following: Physics, Chemistry, Botany, Zoology, Biology, any mathematics subject, at A-level <i>London (Wye)</i> : Chemistry and 1 of the following at A-level: any mathematics subject (except Pure Mathematics with Statistics), any approved Science subject; Mathematics O-level if not A-level * <i>Newcastle</i> : preferably 2 Science A-levels <i>Leeds</i> (3 years): <i>see above Leeds Hons.</i> <i>Reading</i> : 2 of the following preferred at A-level: Physics, Chemistry, Botany, Zoology, or Biology
	B.Sc. Pass	
	B.Sc.	<i>London (*Wye)</i> : Chemistry A-level preferred and 1 of the following preferred at A-level: Botany, Zoology, Biology <i>Wales (*Aberystwyth)</i> : <i>see below B.Sc. Honours</i>

<p>B.Sc. Hons.</p>	<p>3 A-LEVELS REQUIRED: *Newcastle: Chemistry A-level and 2 of the following preferred at A-level: Physics, Botany, Zoology, Biology Nottingham: 3 Science A-levels including either (a) Chemistry, Botany, Zoology, or (b) Chemistry, Biology, Physics, or (c) Chemistry and (i) a biological subject and (ii) 1 of Physics, Mathematics, Geology, Geography Wales (*Aberystwyth): either Botany or Biology A-level and one of the following A-level: Physics, Chemistry, Zoology, or Geology; (*Bangor): Chemistry A-level and 1 of the following A-levels: Botany, Zoology, or Biology A-level preferred * 1 year on approved farm before (or during for Leeds and Aberystwyth) the course.</p>
<p>Agricultural Sciences Honours</p>	<p>B.Sc.</p> <p>2 A-LEVELS REQUIRED: Leeds (4 years, Agricultural Botany): Chemistry and Botany (or occasionally Biology) A-level; (4 years, Agricultural Chemistry): (i) Physics and Chemistry A-level; or (ii) Chemistry, Mathematics, or Biology A-level; Physics O-level Newcastle (4 years): 2 Science A-levels preferred Nottingham (4 years): Mathematics and Chemistry O-level Reading (3 or 4 years): 2 of the following preferred at A-level: any mathematics subject, Physics, Chemistry, Botany, Zoology, or Biology Wales (Aberystwyth, Agricultural Botany): Botany or Biology A-level and 1 of the following A-levels: Pure and Applied Mathematics, Pure Mathematics, Physics, Chemistry, or Zoology; Mathematics O-level required. (Agricultural Biochemistry: see Biochemistry Honours p. 69) 3 A-LEVELS REQUIRED: Newcastle (Agricultural Zoology and Plant Science options), (3 years): Chemistry A-level required; 2 of the following preferred at A-level: Physics, Botany, Zoology, or Biology*; (Soil Science and Agricultural Biochemistry options): Physics and Chemistry A-level and either Botany, Zoology, or Biology* A-level * Biology may not be included with Botany and Zoology.</p>

Course	Degree	Requirements
Agricultural Sciences Honours (<i>contd</i>)		<i>Nottingham</i> : see <i>Nottingham</i> , Agriculture and Horticulture Honours, p. 94 <i>Wales</i> (Bangor): 1 of Botany, Biology A-levels required; Chemistry A-level preferred
Food Science	B.Sc. Hons.	2 A-LEVELS REQUIRED: <i>Nottingham</i> (4 years) and <i>Reading</i> (3 or 4 years): see Agriculture and Horticulture Honours, p. 94
	Ord. & Hons.	3 A-LEVELS REQUIRED: <i>Leeds</i> : Physics, Chemistry A-levels required and preferably 1 of Pure and Applied Mathematics, Pure Mathematics, Pure Mathematics with Statistics, or Mathematics-for-Science A-levels, though Physics, Chemistry, Botany, Zoology, Biology acceptable
	B.Sc. Hons.	<i>Nottingham</i> : see <i>Nottingham</i> , Agriculture and Horticulture Honours, p. 94
Veterinary Science	B.V.Sc.	<i>Bristol</i> (4 years): 2 A-levels including Chemistry required and either (a) Zoology A-level, Botany O-level, Physics O-level, or (b) Biology A-level, Physics O-level; (5 years): any 2 A-levels; Mathematics O-level and Science O-level advisable
	B. Vet. Med.	<i>Liverpool</i> (5 years): 3 A-levels preferred; Chemistry A-level required; Physics or Biology (or Botany and Zoology) A-level preferred; Physics O-level required <i>London</i> (Royal Veterinary College, 4 years and 2 terms): 3 A-levels including

Medicine

R - D

M.B. and
Ch.B.

Physics, Chemistry, and either Zoology or Biology required; (2 A-levels possible if the 3rd subject is at O-level)
2 A-LEVELS REQUIRED:
Birmingham (6 years), *Liverpool*, *Wales* (Cardiff, 6 years): no further special requirements
Bristol (i) (6 years): Mathematics O-level and approved Science O-level advisable; (ii) (5 years): Chemistry A-level and either Zoology A-level (and Botany O-level) or Biology A-level; Physics A-level to be attempted to reach O-level standard
Leeds (6 years): Mathematics O-level required; Chemistry and Physics O-level advisable
Sheffield (6 years): Physics, Chemistry O-level required; Biology O-level preferred
Newcastle (6 years): Mathematics O-level and approved Science O-level advisable
London (5 years and 1 term: Charing Cross H.M.S., Guy's H.M.S., London H.M.C., Middlesex H.M.S., St Bartholomew's H.M.S., St Mary's H.M.S.): no further special requirements

M.B. and B.S.

M.B. and
Ch.B.

3 A-LEVELS REQUIRED:
Birmingham (5 years): 3 A-levels same sitting. Physics and Chemistry A-level and Biology A-level (or Botany or Zoology)
Leeds (5 years): Physics and Chemistry A-level and either Zoology or Biology A-level; Mathematics O-level
Liverpool (5 years) and *Wales* (Cardiff, 5 years): Physics and Chemistry A-level and either Zoology or Biology A-level
Sheffield (5 years): Physics and Chemistry A-level and Biology A-level (or Zoology or Botany occasionally)
Manchester (6 years): Mathematics O-level advisable; (5 years): Physics, Chemistry and 1 of the following: A-level mathematics subject, Zoology or Biology

Course	Degree	Requirements
Medicine (<i>contd</i>)	M.B. and B.S.	<p><i>Newcastle</i> (5 years): Physics, Chemistry, and either Zoology or Biology A-level</p> <p><i>London</i> (i) (4 years and 1 term): Charing Cross H.M.S., Guy's H.M.S., London H.M.C. (4 years and 1 term or 5 years), Middlesex H.M.S., Royal Free H.M.S., St Bartholomew's H.M.S., St Mary's H.M.S., St Thomas's H.M.S., King's College H.M.S., University College H.M.S.): Physics, Chemistry, and either Zoology or Biology A-level; (ii) (5 years and 1 term): Royal Free H.M.S., St Thomas's H.M.S.): Mathematics O-level required</p>
Dentistry	B.D.S. B.Ch.D. B.D.S.	<p>2 A-LEVELS REQUIRED:</p> <p><i>Bristol</i> (4 years and 1 term): Chemistry and either Zoology A-level (and Botany O-level) or Biology A-level; the O-level pass must be obtained in an A-level examination; (5 years and 1 term): Mathematics O-level and approved Science O-level advisable</p> <p><i>Leeds</i> (5 years and 1 term): Mathematics O-level required</p> <p><i>Sheffield</i>: Physics, Chemistry, Biology O-level preferred</p> <p><i>Birmingham</i> (5 years and 1 term), <i>Manchester</i> (5 years and 1 term), <i>Newcastle</i> (6 years), <i>London</i> (Guy's H.M.S., 5 years and 1 term), (Royal Dental Hospital, 5 years and 1 term): no further special requirements</p> <p>3 A-LEVELS REQUIRED:</p> <p><i>Birmingham</i> (4 years and 1 term), <i>Liverpool</i> (4 years and 1 term), <i>Manchester</i> (4 years and 1 term), <i>Newcastle</i> (5 years), <i>Wales</i> (Cardiff, 5 years and 1 term), <i>London</i> (4 years and 1 term): Guy's H.M.S., King's College H.M.S., London H.M.C., Royal Dental Hospital, University College H.M.S.) Physics, Chemistry A-level, and either Zoology or Biology A-level</p> <p><i>Sheffield</i> (4 years): Physics, Chemistry A-level, and either Zoology, Botany, or Biology A-level</p>

B.Ch.D.

Leeds (4 years and 1 term): Physics, Chemistry A-level, and either Zoology or Biology A-level; Mathematics O-level

3 A-LEVELS PREFERRED:

B.D.S.

Liverpool: Physics, Chemistry O-level advisable

Opportunities After O-level

Table IV. First Degree Courses at Oxford and Cambridge.

(See also page 26, *The Oxford and Cambridge System*)

Oxford

The Preliminary Examination qualifying for Final Honour Schools, taken usually after one or two terms, consists of a number of alternative subjects or subject combinations.

Honour Moderations (an intermediate examination before Final Honour Schools) are set in: Greek and Latin Literature; Mathematics; Theology; Biochemistry; Physics-Mathematics-and-Engineering Science.

Final Honour Schools (or examinations) which lead to the Bachelor of Arts degree are as follows:

1. Literae Humaniores (i.e. the Final Classical School of Philosophy and Ancient History, normally taken after Honour Moderations in Greek and Latin Literature)
2. Mathematics
3. Natural Science, one of: Physics, Chemistry, Animal Physiology, Zoology, Botany, Geology, Engineering Science, Biochemistry, Metallurgy
4. Jurisprudence
5. Modern History
6. Theology
7. Oriental Studies: *either* one of the following, together with an approved additional language: Sanskrit, Arabic, Hebrew, Persian, Egyptian, Turkish; *or* Chinese alone, Chinese with Japanese, Japanese alone, Arabic alone
8. English Language and Literature
9. Modern Languages, either one or two of: French, German, Italian, Spanish, Russian, Medieval and Modern Greek, Portuguese
10. Philosophy, Politics, and Economics
11. Geography
12. Agriculture
13. Forestry
14. Psychology, Philosophy, and Physiology. (Candidates must offer two of these three subjects)
15. Music
16. Engineering Science with Economics. (The first examination in this School will take place in 1966)

Note: for Medicine see page 28, *Medical Courses*.

Cambridge

The B.A. degree is the only first degree awarded at Cambridge. The Tripos is the degree examination (see also page 26, *The Oxford and Cambridge System*). The Preliminary examination in the first or second year is

taken by all students, but the result does not count towards the final degree result.

- (a) In the following subjects the Tripos is divided into two Parts, I and II. Agriculture, Archaeology and Anthropology, Architecture and Fine Arts, Classics, Economics, English, Geography, History, Law, Mechanical Sciences (Part I qualifies for the B.A. without further examination), Modern and Medieval Languages, Moral Sciences, Music, Natural Sciences (Part I qualifies for the B.A. without further examination), Oriental Studies
- (b) In the following subjects the Tripos consists of one Part only; Anglo-Saxon, Chemical Engineering, Electrical Sciences, Land Economy. The Tripos in the last three subjects can normally be taken only after obtaining Honours in Part I of another Tripos.
- (c) In the following subjects the Tripos is divided into three Parts, I, II, and III. Mathematics (Part II may be taken without qualifying previously in Part I and qualifies for the B.A. without further examination), Theology.

Note. The courses of study for the degrees of Bachelor of Medicine and Bachelor of Surgery (M.B., B.Chir.) extend over six years, of which the first three are ordinarily spent in residence in Cambridge, during which the candidates must complete the First M.B. Examination (if he has not done this, as is now usual, before coming into residence), the Qualifying Examination in Anatomy and Physiology, and the Examination in Pharmacology, and obtain Honours in a Tripos (usually Part I of the Natural Sciences Tripos). At this stage he is usually qualified to proceed to the B.A. degree. He must then spend at least two years nine months in clinical study at a recognized hospital and pass the Final M.B. Examination before proceeding to the M.B., B.Chir. degrees.

The courses of study for the degree of Bachelor of Veterinary Medicine also extend over six years. The degree is awarded after completion of the Veterinary Examination, which is divided into two Parts. Before coming into residence the student has usually passed, or obtained exemption from, the first M.B. Examination for medical students. He normally spends his first three years reading for the Natural Sciences Tripos, and proceeds to the B.A. degree. In the tenth term begin the three years of post-Tripos veterinary studies at the Cambridge University School of Veterinary Medicine.

Table V. First Degree Courses Available at the New Universities of East Anglia, Essex, Keele, Kent, Lancaster, Sussex, Warwick and York and Course Requirements.

At these new universities the following courses are offered within broad fields of studies. Unless otherwise stated, the normal course requirement for these universities is: *Any 2 approved A-levels.*

<i>University</i>	<i>Degree</i>	<i>School</i>	<i>Requirements</i>
East Anglia	B.Sc.	<i>Biological Sciences</i> (majoring in 1 one of: Experimental Botany; Experimental Zoology; Comparative Physiology and Biochemistry; Biophysics; Cytology and Genetics)	Chemistry A-level and a Science or mathematics A-level preferred. Mathematics O-level if not A-level
		<i>Chemical Sciences</i>	
		<i>Physical and Mathematical Sciences</i>	Chemistry A-level and a Science or mathematics A-level. Mathematics O-level if not A-level
		<i>English Studies</i>	Pure or Applied Mathematics A-level and a Science A-level
	B.A.	<i>European Studies</i> <i>Social Studies</i>	2 A-levels preferably including English or History or a modern foreign language 2 A-levels including a modern foreign language Any 2 A-levels
Essex	B.A.	<i>Social Studies</i> (Economics; Sociology; Government) <i>Physical Sciences</i> (Mathematics; Physics; Chemistry)	Any 2 A-levels
		<i>Comparative Studies</i> (Government; Literature)	3 approved A-levels including 2 of Mathematics, Physics, Chemistry Any 2 A-levels
Keele	B.A.	4-year Honours course in 2 or sometimes 3 of the following: English Language and Literature; History;	

Kent	<p>Latin *; Greek; French *; German *; Philosophy; American Studies; Economics; Political Institutions; Social Studies; Geography; Psychology; Mathematics *; Physics *; Chemistry *; Biology; Geology</p> <p>There are 2 integrated courses each consisting of 3 principal subjects:</p> <p><i>Social Analysis</i> (Philosophy; Economics; Political Institutions)</p> <p><i>International Relations</i> (History; Economics; Political Institutions)</p> <p>* Students can only be expected to reach acceptable levels.</p>	<p>Honours standard if they start from A-level in these subjects.</p>
B.A.	<p><i>Faculty of Humanities</i> (majoring in 1 of: Classical Studies; English Literature; French; German; History; Philosophy; Modern Languages [French and German]; English Literature and French; English Literature and German; any 2 of English, History, Philosophy)</p> <p><i>Faculty of Natural Sciences</i> School of Physical Sciences: Chemistry, Physics, Materials Science</p> <p>School of Mathematics</p>	<p>No special requirements</p>
B.Sc.		<p>A-level in Chemistry, Physics, and Pure Mathematics or Pure and Applied Mathematics. O-level Chemistry and Mathematics may be accepted in exceptional cases</p> <p>A-levels in Pure Mathematics and Applied Mathematics normally required, but A-level Pure Mathematics, and Pure and Applied Mathematics, and Physics may be accepted. Exceptionally, Pure Mathematics, or Pure and Applied Mathematics, and another A-level O-level Mathematics required</p>
B.A.	<p><i>Faculty of Social Studies</i> (majoring in 1 of: Economics; Economic History; Political Studies; Sociology; or any 2 of these)</p>	

<i>University</i>	<i>Degree</i>	<i>School</i>	<i>Requirements</i>
Lancaster	*B.A.	<p>Biology; Chemistry; Classics; Economics; Economics and Environmental Studies; Economics and Politics; English; English and French Studies; Environmental Studies; French Studies; History and Economics; Latin and English; Latin and French Studies; Mathematics; Modern History; Philosophy; Physics; Politics; Politics and History and Philosophy</p> <p>*A B.A. is the only first degree conferred at Lancaster.</p>	The equivalent of 2 or more good A-levels and a wide range of O-levels
Sussex	B.A.	<p><i>English and American Studies</i> (majoring in 1 of: American Studies; English Literature; History; Philosophy)</p> <p><i>European Studies</i> (majoring in 1 of: Economics; English; French*; Geography; German*; History; International Politics; Philosophy; Russian*; Sociology; Politics)</p> <p><i>Social Studies</i> (majoring in 1 of: Economics; Geography; History; International Politics; Philosophy; Sociology and Politics)</p> <p><i>African and Asian Studies</i> (majoring in 1 of: Economics; Geography; History; Sociology; and Politics)</p> <p><i>Educational Studies</i></p> <p><i>Physical Sciences</i> Chemistry</p>	<p>Passes in 2 approved A-levels</p> <p>2 A-levels. See footnote</p> <p>Any 2 A-levels</p> <p>Any 2 A-levels</p> <p>Passes in 2 approved A-levels</p> <p>3 A-levels including Chemistry and Pure Mathematics (or approved mathematics subject) preferred</p>
	B.Sc.		

	<p>Mathematics</p> <p>Physics</p> <p>(1) with a bias to Chemistry</p> <p>(2) with a bias to Mathematics</p> <p>Philosophy</p> <p><i>Biological Sciences</i></p> <p><i>Applied Sciences and Engineering</i></p>	<p>Pure Mathematics A-level and another mathematics subject or Physics preferred</p> <p>3 A-levels, preferably including Physics, Chemistry, Pure Mathematics (or an approved mathematics subject)</p> <p>2 A-levels, preferably including (a) Physics, Pure Mathematics (or another approved mathematics subject) or (b) 2 good mathematics A-levels</p> <p>An approved mathematics subject and either Physics or Chemistry preferred</p> <p>Candidates wishing to major in Biology, Experimental Psychology, or Geography must have passes in 2 approved subjects; 3 are preferred</p> <p>Candidates wishing to major in Electrical Engineering Science and Electronics; Mechanical Engineering Science; Materials Science; or Applied Physics must have 2 approved A-levels. 1 of the passes must normally be in Physics and the other must normally be in a mathematical subject (Pure Mathematics is preferred)</p>
Warwick	<p>B.A.</p> <p>Economics; Economics and Sociology; Economics and Politics</p> <p>History</p> <p>History and Politics; Philosophy; Philosophy and Politics</p> <p>French (School of French Studies, and School of Literature)</p>	<p>*In these courses, one of the 2 A-levels must be in the subject concerned.</p> <p>For B.A. Honours 2 A-levels are required, plus the following course requirements: A- or O-level Mathematics</p> <p>A-level History and at least a modern foreign language at O-level</p> <p>A-level History</p> <p>A-level French. For French and European Literature, in the School of Literature, English Literature at A-level is also required</p>

<i>University</i>	<i>Degree</i>	<i>School</i>	<i>Requirements</i>
Warwick (<i>contd</i>)	B.Sc.	English (School of Literature: English and European Literature; English and American Literature)	English Literature at A-level preferred
		Mathematics	For B.Sc. Honours 3 A-levels are preferred but candidates with 2 A-levels will be considered A-level Pure Mathematics, or Pure and Applied Mathematics
		Molecular Science Engineering Science	A-level Chemistry. A- or O-level Mathematics A-levels in either (i) Pure Mathematics, and Applied Mathematics, or (ii) Pure and Applied Mathematics, and Physics
York	*B.A.	Biology	3 A-levels, normally including Chemistry, Biology (or another biological subject), and either Mathematics, or Physics, or a non-scientific subject, or a second biological subject. Normally O-level Mathematics also
		Chemistry	Normally, A-level Chemistry, and two of Physics, Mathematics, Biology
		English	A-level English and 2 other A-levels. An ancient or modern language and either History, Art, or Music an advantage
		History	A modern foreign language at O-level and preferably at A-level. Latin required for Medieval History
		Language	Normally, O-level and preferably A-level in a language other than candidate's native tongue
		Mathematics	Normally, A-level Mathematics and another A-level subject
		Music	Normally, A-level Music and another A-level subject
		Philosophy	Normally, O-level Mathematics

Physics

Social Science

Normally, A-level Mathematics and (preferably) Chemistry

Normally, O-level Mathematics. A-level Mathematics an advantage for Economics, but all the mathematics necessary can be learnt at the University

• A B.A. is the only first degree conferred at York.

**Table VI. Scottish and Northern Irish Universities:
Subjects Available for First Degree Courses**

The following subjects may be taken as main subjects at all the universities except Strathclyde: Chemistry, Classics (Greek and Latin), Economics, English, French, Geography, Geology, German, History, Mathematics, Philosophy, Physics, Zoology.

The following may be taken as main subjects at the University of Strathclyde: Administration, Applied Chemistry, Applied Microbiology, Architectural Construction, Architectural Design, Biology, Biological Science, Chemistry, Economic History, Environmental Control Engineering, Fibre Science, Food Science, Industrial Economics, Mathematics, Mining Engineering, Physics, Political Theory and Institutions, Psychology.

	Aberdeen	Edinburgh	Glasgow	St Andrews	Strathclyde	Belfast	Londonderry
Accountancy	S	S	S	S		S	
Agriculture	M	M	M			M	
Anatomy	M	M	M	M		M	
Anthropology		M	S			S	
Archaeology		M				M	
Architecture		M	M				
Art/History of Art		M	S				
Astronomy		S	M	M		S	S
Bacteriology	S	M	M	S		S	
Banking		S					
Biochemistry	M	M	M	M	M	S	
Botany	M	M	M	M		M	
Business Studies							M
Celtic	M	M	M			M	
Ceramics			M				
Chemistry							
Colour			S			M	
Technical		M	M			M	
Commerce		M					
Dairying		S				S	
Dentistry		M	M	M		M	
Economic History	M	S	M	M		M	S
Education	M	M	M	M		M	
Electronics	S	S	S	S		S	
Engineering							
Aeronautical			M			M	
Chemical		M	M		M		

M *Matn Subject*

S *Subsidiary Subject*

						Aberdeen	Edinburgh	Glasgow	St Andrews	Strathclyde	Belfast	Londonderry
Civil, Electrical, Mechanical	..					M	M	M	M	M	M	
Marine/Naval, Architectural	..							M		M		
Production	..	..	..	..	..			S				
Structural	..	..	..	..	..			S				
Forestry	..	..	..	..	..	M	M					
Fuel Technology	..	..	..	..	..			S				
Genetics	..	..	..	..	..	S	M	M	S		S	
Geophysics	..	..	..	..	..			S				
History and Philosophy of Science	..				..	S					S	
Italian	..	..	..	..	..	M	M	M				
Latin American Studies	..	..	..	..	..		S	S				
Law	..	..	..	..	..	M	M	M	M		M	
Marine Biology												
Oceanography	..	..	..	..	..			S				
Medicine and Surgery	..	..	..	..	..	M	M	M	M		M	
Metallurgy	..	..	..	..	..		S	M		M		
Microbiology	..	..	..	..	..	S		S			M	
Mining, Mining Engineering	..	..	..	..	..		M	M				
Music	..	..	..	..	..	M	M	M	S		M	
Nutrition/Food Science	..	..	..	..	..			M				
Oriental Studies	..	..	..	..	..	S	M	M	M			
Arabic	..	..	..	..	..	S	M	M	M			
Hebrew	..	..	..	..	..	S	M	M	M		S	
Pathology	..	..	..	..	..	S	M	M	M		M	
Pharmacy	..	..	..	..	..		M	M	M	M	M	
Physiology	..	..	..	..	..	M	M	M	M		M	
Political Science	..	..	..	..	..	M	S	M	M	M	M	S
Portuguese	..	..	..	..	..			S				
Psychology	..	..	..	..	..	M	M	M	M	M	M	
Scandinavian Studies	..	..	..	..	..	M	S	S				
Slavonic and other East European Studies							M	M				
Russian	..	..	..	..	..		M	M				
Sociology/Social Studies	..	..	..	..	..			S	M		S	
Spanish	..	..	..	..	..	M	M	M	M		M	M
Statistics	..	..	..	..	..	S	S	M	S		S	
Textiles	..	..	..	..	..			M			M	
Theology	..	..	..	..	..	M	M	M	M		M	
Veterinary Studies	..	..	..	..	..		M	M			S	

Opportunities After O-level

**Table VII. Scottish and Northern Irish Universities:
Course Requirements**

Scottish Universities

First Degrees awarded are:

Aberdeen: M.A., B.Sc.(Pure, Agric., Forestry, Eng.), M.B., Ch.B.,
Edinburgh: M.A., B.Com., B.Sc., B.Mus., B.Arch., B.D.S., B.V.M.S.,
M.B., Ch.B., LL.B.

Glasgow: M.A., B.Mus., LL.B., B.Sc.(Agric., Eng., Pure Science), M.B.,
Ch.B., B.D.S., B.V.M.S.

St Andrews: M.A., M.A.(Social Sciences), B.Sc., B.Sc.(Applied Science),
LL.B., B.D.S., M.B., Ch.B.

Strathclyde: B.A.(Arts), B.A.(Social Studies), B.Arch., B.Sc.(Science and
Technology)

The Certificate of Attestation of Fitness is the general requirement for entry into all Scottish universities (except the University of Strathclyde) although it is not always a sufficient qualification for admission to particular courses with the universities. Details of, and application for, the Certificate can be obtained from the **Scottish Universities Entrance Board**. The following list covers only those courses with specific requirements. The Higher and Ordinary levels of the Scottish Certificate of Education (S.C.E.) may be considered as being roughly equivalent to G.C.E. A-level and O-level, but G.C.E. requirements should always be obtained from the university concerned.

ABERDEEN

Faculty of Arts: Greek, Hebrew, Arabic, Syriac, Music: S.C.E. H-level or G.C.E. A-level in the subjects concerned.

Faculties of Arts and Science: Mathematics: S.C.E. H-level or G.C.E. A-level Mathematics.

Faculties of Arts and Law: Roman Law: S.C.E. O-level Latin, or adequate knowledge.

Faculty of Medicine: no qualifications additional to the Certificate of Attestation of Fitness

EDINBURGH

Candidates are advised to include proposed subjects of study in S.C.E.

Faculties of Arts and Social Sciences: **M.A. Ord:** Latin, Greek, French, German, Italian, Spanish, Celtic, Russian, Icelandic: the language concerned must be passed at S.C.E. H-level or equivalent. Ancient History, Ecclesiastical History: S.C.E. O-level Latin. **M.A. Hons:** French, Italian, Spanish: S.C.E. O-level in Latin. (Hons. French

Language and Literature: S.C.E. H-level Latin). English: (i) S.C.E. H-level in Latin or Greek or 2 modern foreign languages, *and* (ii) reading knowledge of at least one modern foreign language. Hebrew, Persian, Turkish, Arabic, Sanskrit: knowledge of the grammar of the language and ability to read simple texts. History, European History, Scottish History: reading knowledge of 2 of the following: Latin, French, German, Italian, Spanish, Russian. (Medieval History – Latin required; Modern History – French required.) Fine Art: special entrance test. Reading knowledge of one modern foreign language. Archaeology: S.C.E. H-level in modern or classical language; S.C.E. O-level in Latin.

Faculty of Science: Biological Sciences (Bacteriology, Biochemistry, Botany, Genetics, Pharmacology, Physiology, Psychology, Zoology) and Applied Science (Agriculture, Forestry): *either* a pass in Mathematics on the Higher grade with Science (Chemistry and Physics) also on the Higher grade, *or* Mathematics on the Higher grade with Science (Chemistry and Biology) also on the Higher grade, and Physics on the Ordinary grade, *or* Mathematics on the Ordinary grade together with Science (Chemistry and Physics) on the Higher grade; Biology, also on the Higher grade, should normally be offered. Chemistry: *either* Mathematics on the Higher grade together with Science (Chemistry and Physics) also on the Higher grade, *or* Mathematics on the Higher grade and one of: Chemistry on the Higher grade, *or* Physics on the Higher grade, *or*, exceptionally, Biology on the Higher grade, *or* Science (any 2 of 6 branches) on the Higher grade, should be offered. Geology: *either* a pass in Mathematics on the Higher grade is required together with Science (Chemistry and Physics) on the Higher grade, *or* a pass in Mathematics on the Higher grade together with a pass in Chemistry also on the Higher grade and Physics on the Ordinary grade. Mathematical Physics, Mathematical Science (i.e. (a) Mathematics with Physics or (b) Mathematics with Mathematical Physics): a pass in Mathematics on the Higher grade is required. In addition, for Mathematical Science course (a) and Mathematical Physics, a pass in either Physics on the Higher grade or Science (including Physics) on the Higher grade is required. For entry to Mathematical Science course (b), a Physics qualification is desirable though not essential. Physics: *either* a pass in Mathematics on the Higher grade is required, together with Science (Chemistry and Physics) on the Higher grade, *or* Mathematics on the Higher grade together with passes in Physics on the Higher grade and Chemistry on the Ordinary grade. Applied Science, Engineering, and Mining: (i) S.C.E. H-level in Mathematics and Science (Chemistry I and Physics I), *or* (ii) S.C.E. H-level in Mathematics and Physics (I and II); S.C.E. O-level in Chemistry.

Faculties of Medicine (Medicine and Dental Surgery) and **Veterinary Medi-**

Opportunities After O-level

cine: Candidates with Grade B passes in A-level Chemistry, Physics, and Zoology or Biology are exempted from the same individual subjects in the First M.B. and Ch.B. examinations.

Faculty of Law: Certificate of Attestation of Fitness and S.C.E. O-level Latin.

Faculty of Music: an S.C.E. H-level pass in Music.

GLASGOW

Faculty of Arts: **M.A. Ord**: Latin, Greek, French, Italian, Hispanic Studies, Russian, Polish, Czech, Gaelic, Welsh, Arabic, Norwegian, Hebrew (senior class): the subject must be passed at S.C.E. H-level or G.C.E. A-level. Music: Music at S.C.E. H-level or G.C.E. A-level. Civil Law: Latin at S.C.E. H-level or G.C.E. A-level. Mathematics, Natural Philosophy, Astronomy: Mathematics at S.C.E. H-level or G.C.E. A-level. **M.A. Hons**: English, French, German, Italian, Hispanic Studies, History, Scottish History and Literature: Latin or Greek at S.C.E. H- or O-level or G.C.E. A- or O-level. Hebrew: Greek at S.C.E. H- or O-level or G.C.E. A- or O-level. Latin: Greek at S.C.E. H-level or G.C.E. A-level. Greek, Gaelic: Latin at S.C.E. H-level or G.C.E. A-level.

Faculties of Science (except *Agriculture*) and of *Engineering*: Mathematics at S.C.E. H-level or G.C.E. A-level.

Faculty of Medicine: no qualifications additional to the Certificate of Attestation of Fitness. •

Faculty of Law: English at S.C.E. H-level or G.C.E. A-level; Latin at S.C.E. or G.C.E. O-level.

ST ANDREWS

Faculty of Arts: **Faculty Requirements**: S.C.E. H-level or G.C.E. A-level in the following: (i) Latin or Greek, or (ii) Mathematics and one of: French, German, Russian, Spanish, Arabic, or (iii) two of French, Spanish, Arabic, German, Russian. **Departmental Requirements**: French, German: the subject must be passed at S.C.E. H-level or G.C.E. A-level. Latin, Greek, Hebrew, Russian, Spanish, Music: S.C.E. H-level or G.C.E. A-level or satisfactory performance in Junior Class in the Department. General classes in Mathematics: S.C.E. H-level or G.C.E. A-level Mathematics. General classes in Physics: S.C.E. H-level in Mathematics and Physics. General classes in Chemistry: S.C.E. H-level in Chemistry and Physics or G.C.E. O-level Physics, Chemistry.

Faculty of Social Science: **Departmental Requirements only**: General class in Civil Law: French, German, Mathematics. See *Faculty of Arts*. Statistics: S.C.E. H-level or G.C.E. A-level Mathematics.

Faculty of Science: **Faculty Requirements**: (i) Mathematics and

Science at S.C.E. H-level and whichever of Chemistry and Physics not at H-level, at O-level, or (ii) G.C.E. A-level in one of Applied Mathematics, Biology, Botany, Geology, Zoology, and one of Chemistry, Physics, Mathematics; G.C.E. O-level in whichever of the latter not at A-level. **Departmental Requirements:** Applied Mathematics, Astronomy, Mathematics, Physics: S.C.E. H-level Mathematics or G.C.E. O-level Additional Ordinary or Alternative Ordinary Mathematics. Physics or Chemistry: S.C.E. H-level Chemistry and Physics or G.C.E. O-level in Physics, Chemistry. Statistics: Pass in 1st B.Sc. in Applied Mathematics or Mathematics.

Faculty of Applied Science: Faculty Requirements: (i) Mathematics and Physics with Chemistry at S.C.E. H-level or G.C.E. A-level or at least (ii) Mathematics, Physics, Chemistry at S.C.E. or G.C.E. O-level.

Faculty of Medicine (including Dentistry): no qualifications additional to the Certificate of Attestation of Fitness

Faculty of Law: Latin at S.C.E. or G.C.E. O-level. General classes in Civil Law: S.C.E. or G.C.E. O-level Latin.

STRATHCLYDE

Regulations for Matriculation. Unlike other Scottish Universities, Strathclyde's entrance requirements do not include the Certificate of Attestation of Fitness of the Scottish University Entrance Board.

Faculties of Arts, Social Studies, Science, and Technology: S.C.E. —either four passes at H-level, or three passes at H-level and two at O-level, or three passes at H-level of which two must not be not less than Credit standard or one at Very Good standard. G.C.E. —six subjects of which two must be at A-level, or five subjects of which three must be at A-level. These passes must include English, a language other than English, and a mathematical subject. No subject may be counted at both O-level and H/A-level.

Northern Irish Universities

First Degrees awarded are:

Belfast B.A. B.Sc., B.Sc. (Econ.), LL.B., B.Mus., B.Agr., M.B., B.Ch., B.A.O., B.D.S.

Londonderry. B.A., B.D.S. (Dublin)

B.A. and B.Sc. Pass: 3 years; B.A. and B.Sc. Hons: 4 years.

BELFAST

Faculty of Arts: Generally, Mathematics to G.C.E. O-level required.

Ordinary Courses: Greek, Latin: G.C.E. O- or A-level in subject concerned. French, German, Music, Geography: G.C.E. in the subject concerned, normally at A-level. Medieval French. G.C.E. O- or A-level Latin. Spanish: French G.C.E. A-level or Spanish G.C.E. O-level. Celtic: Irish G.C.E. A-level. Pure Mathematics: G.C.E.

Opportunities After O-level

O-level Mathematics (Additional Mathematics). Applied Mathematics G.C.E. **A-level Mathematics.** Astronomy, Physics: G.C.E. **O-level Physics and Mathematics (Additional Mathematics).** **Honours Courses:** **Classics:** Latin and Greek A-level. Latin: Latin A-level. English Language and Literature: Latin O-level advisable. English and French: French A-level and Latin O-level. Modern History: Latin O-level. French and German: French and German A-level, Latin O-level. French and Celtic: French, Irish A-level, Latin O-level. French and Spanish: French A-level; Latin O-level, Spanish O-level advisable. German and Celtic: German and Irish A-level; Latin O-level. German and Spanish: German A-level and French A-level or Spanish O-level; Latin O-level. Spanish and Celtic: Irish A-level and French A-level or Spanish O-level; Latin O-level. Medieval French and German: German A-level, Latin O-level. Medieval French and Celtic: Irish A-level; Latin O-level. Medieval French and Spanish: French A-level; Latin O-level. French Language and Literature: French A-level; Latin O-level. French and Philosophy: French A-level. German Language and Literature: German A-level, Latin O-level. German and Philosophy: German A-level. German and Music: German and Music A-level. Spanish Language and Literature: French A-level or Spanish O-level; Latin O-level. Celtic Language and Literature: Irish A-level; Latin O-level. Mathematics: Mathematics A-level. Geography: Geography A-level. Psychology: Mathematics O-level (Additional Mathematics) advisable. Medieval Studies: Latin and French A-level; Spanish O-level.

Faculty of Economics: Mathematics O-level required.

Faculty of Science: All candidates should have at least O-level passes in Mathematics, Physics, Chemistry, and either French or German or Russian. Pure Mathematics, Applied Mathematics, Physics, Chemistry, Geography: normally the subject concerned at A-level. Botany: Botany A-level preferred (exceptionally Biology A-level). Zoology: Zoology A-level preferred (exceptionally Biology A-level).

Faculty of Applied Science and Technology: Applied Chemistry or Pharmacutics: Chemistry O-level. Engineering: normally Mathematics and Physics A-level though others considered.

Faculty of Medicine (including Dentistry): Physics, Chemistry A-level; Mathematics (Additional Mathematics) O-level.

Faculty of Agriculture: Physics and Chemistry A-level; one of the following at A-level advisable: Biology, Botany, Mathematics, Zoology; Mathematics O-level required.

Faculty of Law: 2 A-level passes.

Faculty of Theology: Greek O-level.

In exceptional cases exemption may be granted from the requirement for a particular course.

LONDONDERRY

Arts Honours Philosophy: Greek or Latin O-level. Modern History, Political Science Latin O-level and a modern language O-level. English an ancient or modern language A-level All other subjects except Mathematics require Latin at O-level.

Economics and Business Studies Mathematics and a modern language O-level

Natural Sciences Honours Good A-levels in (i) Physics and Chemistry, or (ii) (a) either Physics or Chemistry, and (b) one of Geography or Geology or a mathematics subject or a biological subject.

Table VIII. Unusual Full-Time First Degree Courses not included in Tables III-VII

The subjects are listed in alphabetical order and come under three headings Arts Subjects, Social, Economic, and other Subjects; and Science Subjects Details of degrees for these courses and specific entrance requirements should be obtained from the University concerned.

References in square brackets. *see* Key p. 121.

Arts Subjects

African Studies London (School of Oriental and African Studies)

American Studies Hull [III], Manchester

Ancient History Birmingham [B]

Arabic Durham, Leeds [L2], Liverpool, Manchester (with English or Spanish), London (School of Oriental and African Studies), Wales (Bangor, Cardiff), Cambridge, Oxford, Edinburgh, Glasgow, St Andrews

Aramaic Leeds, London (School of Oriental and African Studies, University College, Jews' College - with Hebrew), Cambridge, Oxford, Edinburgh, Glasgow

Archaeology Birmingham [B], Bristol, Exeter, Leicester, Manchester, Wales (Cardiff [C]), Belfast (subsidiary)

Architecture Durham, Cambridge, Edinburgh, Glasgow

Art (Fine Art and History of Art) Bristol, Durham, Hull, Leeds [L2], Nottingham, Wales (Abcrystwyth), Edinburgh, Glasgow, Cambridge

Assyrian Liverpool, Glasgow, Cambridge

Austronesian Languages. London (School of Oriental and African Studies)

Bengali London (School of Oriental and African Studies)

Bulgarian London (School of Slavonic and East European Studies)

Burmese London (School of Oriental and African Studies)

Celtic Liverpool [LP], Manchester, Cambridge, Aberdeen, Edinburgh, Glasgow, Belfast.

Opportunities After O-level

Central European Regional Studies. London (School of Slavonic and East European Studies)

Ceramics. Glasgow

Chinese. Durham, Cambridge, Leeds, Oxford

Commonwealth Studies. Cambridge, Oxford

Coptic. Oxford

Czech and Slovak Language and Literature. London (School of Slavonic and East European Studies)

Drama. Birmingham [B], Bristol (with Classics, English, French, German, or Spanish), Manchester (single subject or with English, French, or German)

Dutch. London (Bedford, Birkbeck), Cambridge

Education. York (with English, History, or Mathematics), Wales (Aberystwyth, Bangor, Cardiff)

Egyptology. Durham, Liverpool, Cambridge, Oxford

English. Birmingham [B], Bristol (with Drama), Exeter (with French), Hull [H1], Leeds [L2], Manchester (with classical Arabic, Drama, or Italian), Southampton (with French, German, or History), York (with Education or History), Wales (Bangor – with History)

English Literature. Leeds [L2], Liverpool [LP]

Fine Art. *See* ART.

French. Birmingham [B], Hull [H1], Liverpool [LP], Bristol and Manchester (with Drama), Exeter (with English), Leeds [L2], Newcastle (with German, Russian, or Spanish), Southampton (with English, History, or Philosophy)

Geography. Birmingham [B], Durham (with Anthropology), Exeter (with Economics, Geology, Botany, Pure or Applied Mathematics), Hull [H1], Leeds [L1, L2], Liverpool [LP], Newcastle (with Economics or Anthropology), Nottingham (with Geology or Mathematics), Southampton [S] (with History or Botany), Wales (Aberystwyth – with International Politics)

German. Birmingham [B], Bristol (with Drama), Durham (with Spanish), Exeter (with English, Latin, Philosophy, Russian, or Spanish), Hull [H1], Liverpool [LP], Manchester (with Drama), Newcastle (with Spanish), Nottingham (with French, Philosophy, Russian, or Spanish), Southampton (with English, Greek, History, Latin, Philosophy), Wales (Cardiff – with Spanish)

Greek. Birmingham [B], Hull [H1], Leeds (with Latin), Sheffield (with Biblical History and Literature), Southampton (with German), London (King's College – with Latin)

Hebrew. Leeds [L2], London (University College, Jews' College – with Aramaic), Wales (Bangor, Cardiff), Cambridge

Hindi. London (School of Oriental and African Studies)

History. Birmingham [B] (with Social Science), Hull [H2], Leeds [L2].

- Southampton (with Geography, German, or Philosophy), York (with English, Education, Philosophy, or Politics), London (School of Oriental and African Studies – various branches), Wales (Bangor – with Welsh or Philosophy)
- History – Modern. Liverpool [LP], Southampton (with Music), Wales (Swansea – with Economics or Philosophy)
- History – Medieval. Southampton (with Latin)
- History – Welsh. Wales (Bangor – with Welsh, Cardiff – with Welsh)
- History of Science. Leeds [LI]
- Hungarian Language and Literature. London (School of Slavonic and East European Studies for Hons. and Gen.)
- Indonesian. London (School of Oriental and African Studies)
- International Law. Birmingham, Bristol, Hull, Nottingham, Sheffield, Cambridge, Oxford, Aberdeen, Edinburgh, Glasgow, St Andrew's, Belfast, London (University College, London School of Economics), Wales (Aberystwyth)
- International Politics. Wales (Aberystwyth – with Economics, Geography, or Philosophy)
- International Relations. Keele (Philosophy, Economics, and Political Institutions)
- Italian. Birmingham [B], Hull [HI], Leeds [L2], Liverpool [LP]
- Japanese. London (School of Oriental and African Studies)
- Land Use Studies. Durham, Manchester, Newcastle
- Latin. Birmingham [B], Bristol (with Spanish), Exeter (with Spanish or German), Hull [HI], Leeds [L2], Sheffield (with Biblical History and Literature or Spanish), Southampton (with Medieval History), London (King's College – with Greek)
- Law. Exeter [EX1, EX2], Hull [HI], Southampton [S]
- Logic. Birmingham [B]
- Malay. London (School of Oriental and African Studies)
- Marathi. London (School of Oriental and African Studies)
- Military Studies. Oxford
- Music. Birmingham [B], Hull [HI], Leeds [L2], Southampton (with Modern History)
- North American Studies. Manchester, Nottingham
- Pali. London (School of Oriental and African Studies)
- Persian. Cambridge, London (School of Oriental and African Studies)
- Physical Education. Birmingham [B]
- Philosophy. Birmingham [B], Bristol (with Economics or French), Exeter (with German), Hull [HI], Leeds [LI, L2], Liverpool [LP], Manchester (with German), Nottingham (with German or Theology), Sheffield (with Biblical History and Literature or a language), Southampton [S] (or with French, German, or History), York (with History), Wales (Aberystwyth – with Economics or International Politics,

Opportunities After O-level

- Bangor** – with History, **Swansea** – with Modern History, Economics, or Politics)
- Polish Language and Literature.** London (School of Slavonic and East European Studies)
- Portuguese.** Southampton (with Spanish and History), London (King's College)
- Psychology.** Birmingham [B], Exeter [EX1] (or with Mathematical Statistics, Physics, Zoology, Pure or Applied Mathematics), Hull [H1, H2], Leeds [L2], Liverpool, Nottingham (with Physiology), Wales (Cardiff [C])
- Rumanian.** London (School of Slavonic and East European Studies)
- Rumanian Language and Literature.** London (School of Slavonic and East European Studies)
- Russian.** Birmingham [B], Exeter (with French or German), Liverpool [LP], Nottingham (with German, French, or Spanish), London (School of Slavonic and East European Studies)
- Russian Regional Studies.** London (School of Slavonic and East European Studies)
- Russian Studies.** Birmingham
- Sanskrit.** London
- Scandinavian Languages.** London (University College)
- Scandinavian Studies.** Newcastle
- Serbo Croat Language and Literature.** London (School of Slavonic and East European Studies)
- Sinhalese.** London (School of Oriental and African Studies)
- South East European Regional Studies.** London (School of Slavonic and East European Studies)
- Spanish.** Birmingham [B], Bristol (with Drama), Durham (with German), Exeter (with German or Latin), Hull [H1], Leeds [L2], Manchester (with Classical Arabic), Newcastle (with German), Nottingham (with French, German, Latin, or Russian), Southampton (with History and Portuguese), Wales (Cardiff – with German)
- Swedish.** Hull [H1]
- Tamil.** London (School of Oriental and African Studies)
- Theology.** Birmingham [B], Hull [H1], Nottingham (with Philosophy)
- Turkish.** London (School of Oriental and African Studies)
- Urdu.** London (School of Oriental and African Studies)
- Welsh.** Wales (Bangor – with Biblical Studies, History, or Welsh History, Cardiff – with Welsh History)

Social, Economic and Other Subjects

- Accountancy.** Birmingham, Bristol, Southampton [S]
- Anthropology.** Durham (with Geography), Leeds [L2], Manchester, Newcastle (single subject or with Economics or Geography), London

(London School of Economics, University College), Wales (Aberystwyth), Cambridge, Oxford

Economics. Exeter [EX1, EX2], Leeds [L2], Liverpool [LP], Newcastle (with Anthropology or Geography), Southampton [S], Wales (Aberystwyth – with International Politics or Philosophy; Bangor, Cardiff – with Politics or Modern History)

Economic History. Exeter [EX2], Leeds [L2], Southampton [S]

Estate Management. London (College of Estate Management), Cambridge

Government. Exeter [EX1, EX2]

Industrial Psychology. Manchester, Edinburgh

Industrial Relations. Birmingham, London (London School of Economics), Manchester, Wales (Cardiff), Belfast

Industry and Trade. Southampton

Politics. Leeds [L2], Liverpool [LP], Southampton [S], York (with History or Economics), Wales (Swansea – with Philosophy)

Political Science. Birmingham [B]

Political Studies. Hull [H1]

Social Analysis. Keele (Philosophy, Economics, and Political Institutions)

Social Sciences. Birmingham (with History), York

Social Studies. Liverpool

Sociology. Birmingham [B], Exeter [EX1, EX2], Hull [H1], Leeds [L2], Southampton [S]

Statistics. Birmingham (with Mathematics or with Mathematics and Economics), Exeter [EX1, EX2], Leeds [L1], Southampton [S]

Town Planning. Manchester

Transport. London (London School of Economics)

Science Subjects

Agriculture. Durham

Agronomy. Nottingham

Anatomy. Birmingham, Bristol, Durham, Leeds, Liverpool, Manchester, Newcastle, Sheffield, York, London, Wales (Aberystwyth, Bangor, Cardiff [C], Swansea, Lampeter), Cambridge, all new universities except Sussex, Scottish and Northern Irish universities

Animal Production. Nottingham

Applied Mathematics. Exeter (with Geography, Physics, or Psychology), Hull [H1, H2], Wales (Cardiff [C])

Astronomy. Durham, London (University College), Cambridge, Edinburgh, Glasgow, St Andrews, Belfast

Bacteriology. Leeds [L1]

Biochemistry. Wales (Cardiff [C])

Biophysics. Leeds

Opportunities After O-level

Botany. Exeter (with Chemistry, Geography, Geology, or Zoology), Hull [H2], Leeds [L1], Nottingham (with Zoology or Chemistry), Southampton (with Geography), Wales (Cardiff [c])

Building. Liverpool, Manchester, Wales (Cardiff)

Ceramics. Leeds, Sheffield

Chemistry. Exeter (with Pure or Applied Mathematics, Geology, Physics, or Zoology), Hull [H2], Leeds [L1], Nottingham (with Botany, Geology, or Zoology), Wales (Cardiff [c])

Cybernetics. Reading

Dietetics and Nutrition. London (Queen Elizabeth)

Domestic Science. Bristol, London (Queen Elizabeth)

Engineering:

Electrical. Liverpool (Electronics)

Fuel. Birmingham, Durham, Leeds, Sheffield (*see* Chemical Engineering p. 87), London (University College, Imperial College, Battersea C.T., West Ham C.T.), Wales (Cardiff)

Production. Birmingham

Public Health and Municipal. Manchester, London (University College)

Structural. Manchester, Southampton

Textile. Manchester

Electronic Engineering. Manchester (with Physics), Southampton, Wales (Bangor – with Mathematics)

Electronics. Southampton

Forestry. Wales (Bangor), Cambridge, Aberdeen, Edinburgh

Fuel Science. (*See* ENGINEERING, FUEL), Leeds

Genetics. Birmingham, Liverpool

Geology. Exeter (with Botany, Geography, Physics, Pure Mathematics, or Zoology), Hull [H2], Leeds [L1], Nottingham (with Chemistry, Geography, or Physics), Wales (Cardiff [c])

Geophysics. Cambridge

Glass Technology. Sheffield

Leather Science. Leeds

Mathematics. Birmingham [B] (or with Statistics, or with Economics and Statistics), Leeds [L1, L2], Liverpool [LP], Nottingham (with Economics, Geography, or Physics), York (with Education), Wales (Bangor – with Electronic Engineering; Cardiff [c])

–Applied. Exeter (with Chemistry, Geography, Physics, or Psychology), Hull [H1, H2], Wales (Cardiff [c])

–Pure. Exeter (with Chemistry, Geology, Geography, Physics, or Psychology), Hull [H1, H2], Wales (Cardiff [c])

Mathematical Physics. Birmingham

Mathematical Statistics. Exeter (with Botany, Zoology, or Psychology)

Mechanics – Theoretical. Nottingham

Metallurgy. Nottingham (with Mining), Wales (Cardiff [c])
 Meteorology. Edinburgh
 Microbiology. Birmingham, Bristol, Reading, Strathclyde, Wales (Cardiff [c])
 Numerical Analysis. Wales (Aberystwyth)
 Nutrition. London (Queen Elizabeth)
 Oceanography. Liverpool, Wales (Bangor) (with Zoology)
 Oil Technology. London (Imperial)
 Operational Research. Bristol
 Pathology. Cambridge
 Pharmacology. Edinburgh, Glasgow, St Andrews
 Soil Science. Aberdeen
 Statistics. Birmingham, Exeter [EX1, EX2], Leeds [L1], Liverpool, London (London School of Economics, University College), Southampton [S]
 Statistics and Botany. Exeter
 Statistics and Mathematics. Birmingham, Leeds
 Statistics and Operational Research. Bristol
 Statistics and Political Economy. Glasgow
 Statistics and Psychology. Leeds, Southampton
 Statistics and Zoology. Exeter

Key

- B (Birmingham).** *Combination of two subjects from the following list:* Ancient History and Archaeology, Drama and Theatre Arts, English, French, Geography, German, Greek (Ancient), Greek (Modern), Italian, Latin, Logic (only with Mathematics), Mathematics, History, Music, Philosophy, Political Science (only with Philosophy or History), Physical Education, Psychology, Russian, Sociology (only with Psychology), Spanish, Theology.
- EX1 (Exeter).** *General Honours in Social Studies in one of the following combinations:* Economics, Sociology, and Government; Economics, Sociology, and Law; Economics, Sociology, and Statistics; Economics, Government, and Law; Economics, Government, and Statistics; Economics, Law, and Statistics; Economics, Statistics, and Psychology; Sociology, Government, and Law; Sociology, Government, and Statistics; Sociology, Law, and Statistics; Sociology, Statistics, and Psychology.
- EX2 (Exeter).** *Honours in Social Studies:* Economics and Geography; Economics and Government; Economics and Law; Economics and Modern Economic History; Economics and Sociology; Economics and Statistics; Government and Law; Sociology and Government; Sociology and Law; Sociology and Statistics.

Opportunities After O-level

- H1 (Hull).** *Various possible combinations of two of the following subjects:* American Studies, Applied Mathematics, English, French, Geography, German, Greek, History, Italian, Latin, Law, Music, Philosophy, Political Studies, Psychology, Pure Mathematics, Sociology, Spanish, Swedish, Theology.
- H2 (Hull).** *Various possible combinations of two of the following subjects:* Applied Mathematics, Botany, Chemistry, Geography, Geology, Philosophy, Physics, Psychology, Pure Mathematics, Zoology.
- L1 (Leeds).** *Various possible combinations of two of the following subjects:* Bacteriology, Botany, Chemistry, Geography, Geology, History of Science and/or Philosophy, Mathematics, Physics, Physiology, Statistics, Zoology.
- L2. (Leeds).** *Various possible combinations of two of the following subjects:* Anthropology, Arabic, Economic History, Economics, English, English Literature, Fine Art, Geography, Hebrew, History, Italian, Latin, Mathematics, Music, Philosophy, Politics, Psychology, Sociology, Spanish, subsidiary French.
- LP (Liverpool).** *Various possible combinations of two of the following subjects:* Celtic, Economics, English Literature, French, Geography, German, Modern History, Italian, Mathematics, Philosophy, Politics, Psychology, Russian.
- S (Southampton).** *Main subjects may be two of the following:* Accountancy, Economics, Economic History, Geography, Industry and Trade, Law, Philosophy, Politics, Sociology, Statistics.
- C (Wales (Cardiff)).** *Various possible combinations of two of the following subjects:* Anatomy, Applied Mathematics, Archaeology, Biochemistry, Botany, Chemistry, Economics, Geology, Metallurgy, Microbiology, Physics, Physiology, Psychology, Pure Mathematics, Zoology.

2 Teacher Training

A Guide to Help You to Choose Your College

General and Specialist Colleges of Education: Entrance Requirements; Length of Courses; Final Qualifications; How to Apply; Colleges Not in the Clearing-House System; Courses outside the System; Time of Application; References and the Interview

Chart C. General Colleges of Education: Use of the Chart; Supplementary Courses; Froebel Courses; Science and Handicraft Courses

Nature of the Courses

Facilities for Mature Students: Day Colleges

Training to Teach Handicapped, Blind, and Deaf Children

Housecraft: Specialist Colleges; General Colleges Providing a Specialist Course in Housecraft

Physical Education: Specialist Colleges; General Colleges with Physical Education Wings

Modern Educational Dance: Specialist College

Youth Leader Training Colleges

Art, Music, Speech, and Drama: Specialist Colleges; Graduate Art Teacher Training; Speech and Drama; Music

Technical Colleges of Education

Four-Year Degree Courses and Colleges of Education: University of Durham; University of Liverpool; University of London; Table IX.

Teacher Training in Scotland: Entrance Requirements; Final Qualification; Diploma Subjects; Training to Teach Handicapped, Blind, and Deaf Children

Teacher Training in Northern Ireland: Course A; Course B; Course C; Combined Course; Professional Training for Graduates; Special One-Year Courses; Specialist Housecraft College; Specialist Physical Education College

Work Pattern; Social Aspects of College Life

Residence

The National Union of Students

Books Recommended

This chapter is mainly intended for school-leavers, although there are sections of it which will interest graduates and older persons who want to take up teaching. Following the recommendation of the Robbins Report, colleges previously known as Teacher Training Colleges are now called Colleges of Education. You can train to become a teacher at one of the following:

A University Department of Education (if you already hold a degree).
Details can be obtained from the **Graduate Teacher Training Registry**.

A College of Education, including former Froebel Colleges. Post-graduate courses are also provided at some general Colleges of Education. *See* Chart C. Information about post-graduate courses is obtainable from the G.T.T.R.

A specialist Housecraft College.

A specialist Physical Education College.

A Training Department of an Art College (if you already hold a diploma in Art).

A Speech, Drama, or Music specialist College.

A Technical College of Education.

Each type of college equips its students to teach, but the age-groups for which training is given, and the main academic subjects of study, vary according to the college.

There are a certain number of personal qualifications for teaching which a College of Education Principal will look for at an interview. As well as a desire to teach, patience, kindness, understanding, enthusiasm, originality, and a certain evenness of temper are all assets. Candidates must be eighteen on 1 October (or on 1 February for January entry) in the year concerned for admission to Colleges of Education (apart from Technical Colleges of Education, where candidates must be at least twenty-five). For four-year courses, candidates between seventeen and eighteen will also be considered.

Opportunities After O-level

There are about 160 colleges for the training of teachers. The majority are maintained by Local Education Authorities, 27 by the Church of England, about 12 by the Roman Catholic Church, and the remainder by various religious and voluntary organizations.

How do you decide where to apply, with so many colleges to choose from? This needs a lot of careful thought, for it is a great mistake to make a choice without full consideration of all the possibilities. Your final choice of colleges will often depend on your G.C.E. qualifications, since the more popular colleges need only take the most able candidates. Even before your G.C.E. results are out, you will have some idea of the standard of your work, and if you know you are a borderline case, it is safer not to apply to the larger mixed colleges, which usually have a much higher standard of entry. It is sensible therefore to include a less popular college in your final choice.

A Guide to Help You to Choose Your College

1. Decide which age-group and subject(s) you ultimately wish to teach. Select the colleges which offer the course you require (see Chart C) and write for their prospectuses. The *Handbook on Training for Teaching* could also be consulted; it gives full details of the courses offered by colleges as well as a description of the colleges themselves, their size, location, and distinctive points. Supplements are issued to give recent information. Public libraries and schools will have copies of the Handbook.

2. Find out the size of the college and whether it accepts mature students. A larger college will usually offer a wider range of courses (see Chart C), and colleges accepting a proportion of mature students will provide a more lively and stimulating atmosphere.

3. Find out the geographical position of the college. If you enjoy the countryside, like walking, and are a quiet person, then a college in the country will meet your requirements, but remember that it will not always be easy for you to reach the nearest town for social and cultural facilities. Colleges in or very near cities and university towns will generally provide a more lively social and cultural life. It is not advisable to attend a college in your home area, since the school-college-school cycle is somewhat narrowing and restrictive. Growing up and becoming independent are as much a part of education as receiving a formal academic training.

4. Find out what facilities the colleges offer for your subjects. On

the whole the larger colleges will provide the best facilities. General colleges offer a range of subjects, from which you will choose one or two for special study. Other colleges have wing courses which provide better facilities for specialization, and students successfully completing a wing course are well equipped to teach in grammar schools. They are mainly provided for handicraft, science, and P.E. A third type is the specialist college, which, like the general college and the wing college, offers a range of subjects for study while at the same time specializing in a particular subject like P.E.

5. Find out about the size of the library: once you are at college, this will be very important for your work.

6. Find out what student societies and clubs the college has. Some of them will have a large number, covering a broad range of interests.

7. Finally, ask teachers and friends at Colleges of Education about the different colleges. The reputations of colleges fluctuate, and it is not always easy to obtain a coherent picture. You may have a chance to meet students when you attend an interview, and this is a good opportunity to ask questions about the college.

General and Specialist Colleges of Education

Entrance Requirements

The minimum educational qualifications for entry to this type of college are five O-level G.C.E. passes, but only one candidate in ten is accepted with the minimum qualifications. At least six O-levels and one A-level pass are advisable, owing to the increasingly high educational standard of applicants. About sixty-five per cent have at least one A-level. You will have little chance of getting into a large, mixed college with one A-level and six O-levels, but you may get into a smaller less popular one. This is largely due to the shortage of places in Colleges of Education and also due to the drive to raise Colleges of Education to the same academic plane as universities. Many college Principals feel a good general Sixth-form course to be at least as valuable as A-level passes, and possibly more appropriate for a prospective teacher. In most cases no specific subject at O-level and A-level in the G.C.E. is required, but candidates are advised to hold an A-level pass in the particular subject in which they want to specialize at college and subsequently teach, or at least to have completed a Sixth-form course in the subject. Most colleges require students

Opportunities After O-level

to have English Language O-level, and prefer Mathematics.O-level in addition.

It is possible to enter upon a course of teacher training without the formal educational requirements, since a Principal can admit such a student after obtaining the approval of the Academic Board of the Institute of Education, usually following a special entrance examination; but this is difficult and comparatively rare.

Length of Courses

All general courses for unqualified candidates at Colleges of Education, and full courses at specialist colleges, take three years, but an older student (by virtue of age, education, and /or experience) may be allowed to shorten the course. Courses normally begin in September and end in July; at a few colleges they begin in January and end in December.

Courses at Technical Colleges of Education, supplementary courses, and post-graduate courses last for one year, while degree courses at Colleges of Education take four years. Courses at Art Colleges and Training Centres, including a year of professional training, take five years.

The length of the term varies, but the average is ten and a half weeks; the autumn term is slightly longer, averaging twelve and a half weeks.

Final Qualifications

On successfully completing the course, you will be awarded a Certificate in Education by the Institute of Education under which your college comes (with the exception of students at Goldsmiths' College, which examines for and issues its own certificate). The certificate will allow you to teach any age-group. Many institutes state the student's main subjects of study on the certificate. It is hoped that colleges, sponsored by the universities or otherwise, will soon be able to award degrees to their students who have taken a four-year course.

Qualified teachers from Colleges of Education may teach in an Institute of Further Education or any type of school, though it is generally assumed that they will teach in a primary, secondary modern, or comprehensive school. Grammar-school teachers normally require a degree, although teachers trained in specialist colleges for practical subjects are also well equipped to teach in grammar schools. This may change rapidly when the Colleges of Education

give their own degrees. Church of England training-college students are not necessarily expected to teach in Church of England schools.

How to Apply

Colleges of Education were running their own clearing-house years before the universities thought of such a thing, and by now they have worked out a very efficient and streamlined system to make sure that as many candidates as possible are accepted by the colleges of their choice, and (even more important) that nobody with the desire and ability to become a teacher is frustrated by being turned away while there is a college in the country which could offer a place. However, about 900 acceptable candidates were unable to find a place in 1963.

Having consulted the *Handbook on Training for Teaching*, write to about ten of the colleges offering the required courses and ask for prospectuses and application forms. Included with these will be a card for you to send to the **Central Register and Clearing-House**, which will then supply full details of the rather complicated application procedure. You will be asked to name your first and second choice of colleges and a pool of four colleges as your third choice. If the first college does not accept you, your application form will be passed on to the next on your list. If, as very often happens, your second-choice college has filled all its places with people who made it their first choice, the clearing-house will send your papers on to one of the remaining four colleges on your list which still have vacancies.

If you do not receive an offer of admission at any of the six colleges you have named, but have said that you would be willing to attend any college, the clearing-house will continue to forward your application wherever there is a vacancy, and will arrange for you to be interviewed at a college near your home if none of the other colleges has invited you. In September there is a further crop of vacancies after the A-level results come out, when students whose provisional offers of university places are confirmed withdraw their acceptance of College of Education places. The clearing-house then arranges for unplaced candidates to apply direct to a few more colleges, so that even at this late stage there is no reason to give up hope. The process of selection may seem agonizingly long-drawn-out to the less successful applicant, but it succeeds astonishingly well in matching up vacancies and candidates so that as few as possible are disappointed. Indeed, candidates are placed right up to October.

Opportunities After O-level

Colleges Not in the Clearing-House System

Bolton Technical Training College

Garnett College

Huddersfield Training College for Technical Teachers

Wolverhampton Technical Teachers College

Courses Outside the System

UNIVERSITY OF DURHAM. Degree courses at Bede College, Neville's Cross College, St Hild's College.

GOLDSMITHS' COLLEGE. Combined Degree and Training Course. Candidates applying *only* here should write direct to the college.

COUNTY OF STAFFORD TC. Madeley College, near Crewe. One-year course in Housecraft for those holding the Institutional Management Certificate or equivalent.

For entrance to these, candidates should apply direct to the Principals, whose addresses are included in relevant sections of this chapter.

Time of Application

Candidates should aim at applying for admission to a College of Education as early as possible, and should send for the prospectuses in the summer of the year before they hope to start on their course of study. Once the candidate's choice of colleges has been made, a completed 'MW' card should be sent to the clearing-house on or after 15 September, so that application forms can be supplied. The application forms should be returned, preferably, between 8-15 October. There is no final closing date for their return, but the clearing-house discontinues sending out forms between 1 July and 1 September. After 1 September it starts sending out application forms again together with an up-to-date list of 'late' vacancies.

Candidates applying for a Physical Education course at a Specialist wing or General College apply earlier; they should obtain their forms from the clearing-house and apply to colleges on or after 1 July in the year preceding the year of entry.

Dates of application are under discussion, and they may well be changed in the near future.

References and the Interview

College authorities generally require a reference from your head teacher, or from your employer (or some person of standing) if you

have been working prior to applying for admission to training college. Occasionally colleges require further references. Your academic record and the confidential school report are influential and important factors in obtaining admission to a college, and your suitability for teaching will be assessed at an interview. You will be able to find out far more about the college than the prospectus shows, when you attend for an interview. Almost certainly you will be given an opportunity to ask questions, look around the college and you may be able to meet some of the students. Have some questions ready to ask the Principal or whoever interviews you, for example:

I wish to take Science (P.E., Drama, etc.) as my main subject: may I see the facilities for this? Would it be possible to talk to the lecturers concerned? May I see the library?

Would my work take me on from A-level standard or is the course geared only to O-level standard?

Ultimately I wish to teach in a comprehensive school: shall I be able to take part of my school practice in this type of school?

There are many other questions which you can ask the Principal and the students. It shows intelligence, and will help you to find out whether that particular college is suited to your requirements. Have your questions ready in your mind before you visit the college. At some colleges the interview is followed by a written test, usually in English.

Chart C

Key to the Chart

M	=	Men	Spec.	=	specialist course
MX	=	Mixed	S	=	subject can be taken at main or subsidiary level
W	=	Women			
S	=	subject can be taken at subsidiary level only			

Main-course subjects in the 'other subjects' column and the 'special features' column are in italic type, subsidiary subjects in ordinary type. Usually, main subjects are also available as subsidiary subjects although subsidiary subjects are not always available as main subjects. S.M. has been inserted in the appropriate column where colleges call their course Secondary Modern and not just Secondary. Colleges stating particularly that they offer a Secondary Grammar course (sometimes as well as a secondary course) have the information inserted in the special-features column.

Opportunities After O-level

Chart C General Colleges of Education

See Key to Chart p. 131

Constituent Colleges of each Area Institute of Education	Number of Students	Age Ranges													
		Nursery	Nursery/Infant	Infant	Infant/Jnr	Junior	Jnr/Secondary	Secondary	Mathematics	Divinity	French	General Science	Physics/ Chemistry	Biology	Handicraft
BIRMINGHAM INSTITUTE Birmingham, City of	620 MX		*			*	*	S.M.	X	X				X	
Bordesley Day	160 W		*	*	*	*			S	S					X
Cornelia Connely, B'ham	550 W		*	*	*										
Coventry, City of	750 MX		*	*	*	*	*		X	X	X	S	X	X	
Dudley	550 MX		*	*			*	*	X	X		X	X	X	X
Hereford	400 W				*		*		S	X		X		S	
St Paul's, Rugby	300 W		*	*	*	*	*	S.M.	X	X		X		X	
St Peter's, Saltley	370 M				*	*	*	S.M.	X	X	X		S	X	X
Shenstone, Bromsgrove	400 MX		*	*	*	*	*	S.M.	X	X		S		X	
Summerfield, Kidderminster	210 W		*	*	*				S	X		S		X	
Westhill, B'ham	270 MX			*			*	*	S	X		S		X	
West Midlands, Walsall	700 MX		*	*	*	*	*		X	X		X			
Wolverhampton Day	300 MX		*	*	*	*	*		X	X		X		X	
Worcester, City of	650 MX		*		*	*	*	*	X	S		S			X
BRISTOL INSTITUTE St Mary's, Cheltenham	470 W		*	*	*	*	*	*	X	X		X		X	
St Matthias, Fishponds	480 W	*	*		*	*	*		X	X	X			X	
St Paul's, Cheltenham	520 M						*	*	X	X	X	X			X
Gloucestershire	500 W						*	*	X			X			

Included in the Clearing House Scheme

Additional Subject Courses				Shortened Courses for Mature Students	Post-Graduate Courses	Degree Courses	Special Features
Needlework	Drama/Speech	P.E. - Men	P.E. - Women				
x	x	x					Prof. course for qualified <i>Music</i> students
			s		*		
							R.C. New college. Inquiries to Catholic Education Council, 41 Cromwell Road, SW 7
x	x	x			*		P.E. wing for women
x	x	x			*		<i>Economics</i> to Part I degree standard of London University. Spec. <i>Science</i> , <i>Art and Craft</i>
			s		*		
					*		
x			x		*		R.C.
	x	x			*		C. of E. Grammar course. <i>Handicraft</i> , <i>Mathematics</i>
			s				
							Free Church. Supplementary <i>Froebel</i> course. Youth work. Spec. <i>Divinity</i>
x		x	x		*		
	x				*		
x		x	s		*		Spec. <i>Rural Studies</i> , <i>Housecraft</i> , and <i>Science</i> . College farm
					*		C. of E. P.E. wing (<i>Science</i> and P.E. - Secondary Modern only)
					*		C. of E. Rural Primary School course
					*		C. of E. P.E., <i>Handicraft</i> and <i>Natural Science</i> wings
		x					
x					*	*	Spec. <i>Housecraft</i>

Opportunities After O-level

Constituent Colleges of each Area Institute of Education	Number of Students	Age Ranges													
		Nursery	Nursery/Infant	Infant	Infant/Jnr	Junior	Jnr/Secondary	Secondary	Mathematics	Divinity	French	General Science	Physics/ Chemistry	Biology	Handicraft
Newton Park, Bath	425 MX		*	*	*		*		x	x				x	
Redland, Bristol	480 MX				*	*	*	*	x	x		x		x	x
Salisbury	360 W		*		*			S.M.	x	x		x			
CAMBRIDGE INSTITUTE Balls Park, Hertford	375 W		*	*	*	*			x	x				x	
Bedford	174 W		*	*	*									x	
Brentwood Day	390 MX		*		*	*	*		x	x		x			
Hockerill, Bishops Stortford	250 W		*		*	*	*			x	x			x	
Homerton, Cambridge	330 W			*	*	*	*	*	x	x	x		x	x	
Norwich	400 MX		*	*	*	*	*	*	x	x		x		x	
Saffron Walden	170 W		*		*	*	*	*		x				x	
St Osyth's, Clacton	530 W		*		*	*	*	*	x	x		x	x	x	
Wall Hall, Aldenham	400 MX	*	*		*	*	*		x					x	
DURHAM INSTITUTE Darlington	264 W	*		*	*	*	*		x	x				x	
Middlesbrough Day	190 MX			*	*	*	*		x			x			
Neville's Cross, Durham	450 W		*	*	*	*	*	*	x	x	x		x	x	
St Hild's, Durham	250 W		*	*	*	*	*			x				x	
Sunderland	500 MX	*	*	*	*	*	*	S.M.	x	x		x		x	
Venerable Bede, Durham	430 M				*	*	*	S.M.	x	x		x	x	x	
EXETER INSTITUTE St Luke's, Exeter	700 M				*	*	*		x	x	x		x	x	
Rolle, Exeter	420 W		*	*	*	*	*	*	x	x	x		x	x	
HULL INSTITUTE Hadsleigh, Hull	450 W		*	*		*	*	S.M.	x	x	x		x	x	
Kingston-upon-Hull	480 MX			*		*	*		x	x			x	x	

Teacher Training

Additional Subject Courses				Other Subjects	Standard Courses for the Students	Graduate Level	Degree Courses	Special Features
Needlework	Drama Speech	P.E. Men	P.E. Women					
				Rural Studies (Secondary only) Dance Horticulture Commerce & Educational Dance Technical Education Subsidiary courses in most subjects				1 yr professional course for qualified students in <i>Agric and Horticulture</i> 1 yr supplementary course for teachers of handicapped children Certificate
				Physical Education	*			1 men admitted to mature-students courses in <i>Physical Science</i> or <i>Mathematics</i>
				1. 11111	*			Certificate
				1. 11111	*			Science (Secondary) of 1
				1. 11111	*			1. 11111, Needlework (Secondary)
				Rural Science Education	*			
				1. 11111 (N.M.M.)	*			Own Nursery, Infant, and Jnr schools
				1. 11111 Physical Philosophy and Psychology	*	*	*	P.E. wing 1967 - mixed college
				1. 11111 History and Geography		*	*	Certificate
				1. 11111 Film and Television	*	*	*	Use of Durham University Library Certificate Science wing
				1. 11111	*	*		Certificate Grammar and Technical course P.E. wing Spec Music course with Dartington College which leads to Diploma of Music Education for Schools Music course as for St Luke's above. Interim Music course
				Biology and Rural Science	*			
				1. 11111 Latin Education	*			R.C. P.F. wing
				1. 11111 Physical Science, Social Science, and Maths, Social and Commercial Subjects - Secondary	*	*		Fieldwork

Opportunities After O-level

Constituent Colleges of each Area Institute of Education	Number of Students	Age Ranges													
		Nursery	Nursery/Infant Infant	Infant/Jnr	Junior	Jnr/Secondary	Secondary	Mathematics	Divinity	French	General Science	Physics/ Chemistry	Biology	Handicraft	
KEELE INSTITUTE															
Cheshire County, Alsager	650 MX		*		*	*	*	X	X	X	X		X		X
Cheshire County, Crewe	450 W	*	*		*		S.M.	X	X	X		X	X		
County of Stafford, Madeley	600 MX			*	*	*	*	X	X	X	S		X		
LEEDS INSTITUTE															
All Saints															
Bingley	540 W		*		*	*	S.M.	X	S	X	X				
Bretton Hall, Wakefield	320 MX				*	*	*	X			X		X		
James Graham Day, Leeds	280 MX			*		*		X	S	X	S	X	X		
Leeds, City of	630 MX		*		*	*	*	X	X	X	X	X	X	X	X
Margaret McMillan, Bradford	310 W	*	*		*			S	X		X		X		
North Riding, Scarborough	180 W			*					X				X		
Oastler Day, Huddersfield	300 MX		*	*	*	*		X	X	X	X				
Ripon	400 W			*	*	*		X	X				X		
St John's, York	850 MX				*	*	S.M.	X	X		X	X	X	X	X
Trinity College															
LEICESTER INSTITUTE															
Leicester	550 MX	*		*	*	*	*	X	X	X		X	X		

Teacher Training

Additional Subject Courses ^a				Shortened Courses for Mature Students	Post-Graduate Courses	Degree Courses	Special Features
Needlework	Drama/Speech	P.E. - Men	P.E. - Women	Other Subjects			
x	x	x		<i>Rural Studies. Art of Movement</i>	*		Internal assessment - no final external exam.
	x		x	<i>Rural Science. Commerce. Books. Dance. Art of Theatre</i>	*		Own nursery school in Crewe. <i>Rural Science</i> specialist course
		x	x	<i>Art and Craft - s only. Housecraft</i>	*		Grammar course in Spec. P.E. - men, and <i>Home Economics</i>
							Inquiries to the Catholic Education Council 41 Cromwell Road, sw 7
s			x	<i>History - s only. Sociology</i>	*		
x	x			(No <i>History</i> or <i>Geography</i> .) Combined <i>Movement, Drama, and English</i> course	*		Grammar course. 1-yr course for students with <i>Music, Drama, Arts and Crafts</i> qualifications
			s	<i>Physical Science. General Science - s only. English - main only</i>	*		
		x	x	<i>Rural Studies. Human Biology. Elementary Science</i>	*	*	Science wing, P.E. wing with Carnegie Coll. 1-yr Handicraft course for holders of City and Guilds qualifications
							Nursery work. Coll. year Jan.-Dec.
s				<i>Environmental Study. Nature Study</i>	*		
	x	s	s	<i>Environmental Studies. Education. Modern Languages: German, Spanish, French, Italian, Russian. (No Music.) Yorkshire Environment. Foreign Novel</i>	*		Subjects arranged in broader groups
s	s		s	<i>Rural Science. World Literature</i>	*		C. of E.
		x	x	<i>Rural Science</i>	*		C. of E. <i>Rural Science, Science</i> and P.E. wing. Own secondary school. 1-yr professional course for graduates in <i>Rural Studies</i>
							Inquiries to the Catholic Education Council, 41 Cromwell Road, sw 7
		x	x	<i>Environmental Studies. Dance and Drama. German</i>	*		Some students in French spend 6 months studying in France

Opportunities After O-level

Constituent Colleges of each Area Institute of Education	Number of Students	Age Ranges													
		Nursery	Nursery/Infant	Infant	Infant/Jnr	Junior	Int/Secondary	Secondary	Mathematics	Divinity	French	General Science	Physics/ Chemistry	Biology	Handicraft
LIVERPOOL INSTITUTE Chester	450 MX					*	*	*	X	X	X	X			
Christ's, Liverpool	600 MX		*	*	*	*	*	*	X	X	X	X	X	X	X
Edge Hill, Ormskirk	600 MX			*	*	*	*	S.M.	X	X	X	X	X	X	
Kirkby Fields	268 W			*			*		X	X	X	X	X	X	
Liverpool, City of	450 MX		*		*			S.M.	X	X	X		X	X	
Mt Pleasant, Liverpool	600 W		*		*	*	*	S.M.	X	X	X		X	X	
St Katherine's, Liverpool	500 W														
LONDON INSTITUTE All Saints, NI7	508 W	*		*		*	*		X	X	X			X	
Avery Hill, SE9	700 MX	*	*	*	*	*	*	*	X	X	X	X			X
Borough Rd, Isleworth	575 MX			*	*	*	*	*	X	X	X	X			
Brighton	510 MX			*	*	*	*	*	X	X	X			X	
Christchurch, Canterbury	500 MX			*	*	*	*	*	X	X		X			
Coloma, West Wickham	660 W		*	*	*	*	*		X	X	X			X	
Digby Stuart	600 W		*	*	*	*	*	S.M.	X		X		X	X	
Eastbourne	320 W			*	*	*	*	S.M.	X	X					
Froebel Ednl. Inst., SW15	460 W	*	*	*	*	*	*		X	X				X	
Furzedown, SW17	450 W	*	*	*	*	*	*	*	X	X		X	X	X	
Goldsmiths', SE14	1040 MX			*	*	*	*	*	X	X	X	X			X
Gipsy Hill, Kingston	356 W	*		*	*	*	*		X	X	X			X	
Manresa, SW15	260 MX		*		*	*	*		X	X				X	X
Maria Assumpta, W8	300 W		*	*	*	*	*	*	X	X	X			X	
Maria Grey, Twickenham	480 W	*	*	*	*	*	*	*	X	X				X	X
Philippa Fawcett, SW16	300 W	*		*	*	*	*	*	X	X	X			X	
Rachel MacMillan, SE8	250 W	*	*	*	*	*	*	*		X				X	

Teacher Training

Additional Subject Courses				Shortened Courses for Mature Students	Post-Graduate Courses	Degree Courses	Special Features
Needlework	Drama/Speech	P.E. - Men	P.E. - Women	Other Subjects			
	x			<i>Linguistics. General Science with Mathematics. Handicraft - men</i>	*		C. of E. P.E. wing
	x	x		<i>German</i>	*		R.C.
	x	x		<i>Sociology. Rural Studies</i>	*		<i>Youth Work</i>
		x		<i>Art of the Theatre. Sociology, Rural Studies</i>	*		September entry from 1965
	x	x			*	*	
			x	<i>Youth Leadership with Modern History</i>		*	R.C. Grammar course. <i>Youth Work</i>
x		x					C. of E.
			x	<i>Home Economics. Physical Science</i>			C. of E. Amalgamating St Katherine's College, Tottenham and Berridge House, Hampstead, Sept. 1964. A few men admitted to mature-students course
x	x	x		<i>Men's Crafts, Combined Art course for primary students</i>	*	*	P.E. wing for women
		x		<i>Heavy crafts</i>		*	Speech Training
x		x		<i>(No History)</i>	*		Spec. <i>Housecraft</i>
x	x			<i>Movement. Natural Science</i>	*		C. of E. Maths., Divinity, Science - s only
x	x	x		<i>Bookcraft. Pottery. Weaving</i>	*		R.C.
			x	<i>Natural Science</i>	*		R.C. Spec. <i>Housecraft</i>
			x	<i>Pottery and Modelling. Sculpture. Textiles</i>			Own school - co-ed. prep.
x	x			<i>Movement</i>	*		
	x	x	x	<i>Movement. Russian. German</i>	*	*	Spec. <i>Handicraft, Mathematics, Science</i> (Secondary)
			x	<i>Natural Science</i>	*		
x				<i>Social Studies</i>	*		Day annexe of Battersea Coll. for Domestic Science
	x			<i>Natural Science. Social Biology</i>	*		R.C.
	x			<i>Commerce</i>			New annexe at Brondesbury for day students
x				<i>(No Geography.) Pottery</i>			1-yr prof. course for qualified <i>Munie</i> students
							Own nursery/infant school at Wrotham. Course based on Froebel ideas

Opportunities After O-level

Constituent Colleges of each Area Institute of Education	Number of Students	Age Ranges													
		Nursery	Nursery/Infant	Infant	Infant/Jnr	Junior	Jnr/Secondary	Secondary	Mathematics	Divinity	French	General Science	Physics/ Chemistry	Biology	Handicraft
Shoreditch, Egham	565 M							*	x			x			x
Sidney Webb, Day, SW1	240 MX		*	*	*	*	*	*	x	x		x			
Southlands, SW19	450 MX		*	*	*	*	*	*	x	x	x		x	x	
St Gabriel's, SE5	314 W		*	*	*	*	*	*		x	x			x	
St Mark and St John, SW10	550 M					*	*	*	x	x	x	x	x	x	x
St Mary's, Twickenham	720 M						*	*	x	x	x		x	x	x
Stockwell, Bromley	550 MX		*		*	*	*	*	x	x	x			x	
Trent Park, Barnet	700 MX		*		*	*	*	*	x	x		x			
Whitlands, SW15	450 MX			*	*	*	*	*	x	x		x	x	x	
MANCHESTER INSTITUTE Charlotte Mason, Ambleside	150 W			*		*			s	x	x			s	
Chorley Day	210 MX			*		*	*		x	s		x	x	x	
De La Salle, Manchester	660 M				*	*	*	*	x		x	x	x	x	x
Didsbury	1200 MX		*	*	*	*	*	S.M.	x	x		x	x	x	
Elizabeth Gaskell	450 W		*	*	*	*	*		s	s		x			
Lancaster	80 MX			*	*	*	*	S.M.	x	x		x			
Manchester Day	270 W		*		*	*	*	S.M.	x	x				x	
Mather Day	240 W		*	*	*				x	x	s	s		x	
Padgate, Manchester	580 MX		*	*	*	*	*	S.M.	x	x			x	x	
Poulton	240 MX			*		*			x	x	x			x	
Sedgley Park, Prestwich	320 W		*	*	*	*	*	S.M.	x	x	x	x		x	
NEWCASTLE INSTITUTE Alnwick	170 MX		*	*	*				x	x					
Northumberland Coll., Ponteland	420 MX		*	*	*	*			x	x	x				
Kenton Lodge, Newcastle	270 W		*		*	*	*	S.M.	x	x		x			
Newcastle Day	280 MX		*		*	*	*	S.M.	x	x		x			

Teacher Training

Additional Subject Courses *				Shortened Courses for Mature Students	Post-Graduate Courses	Degree Courses	Special Features
Needlework	Drama/Speech	P.E. - Men	P.E. - Women				
	x	x					Grammar course. Spec. <i>Handicraft Housecraft</i> - only Secondary course
	x	x	x	*			Methodist
	x			*			C. of E.
					*	*	C. of E. Grammar course. Prof. course for qualified <i>Music</i> students, open to women
		x		*	*	*	R.C. P.E. wing
x				*			
				*			Prof. course for qualified <i>Music</i> students. Spec. <i>Speech and Drama, Art of Movement, Handicraft</i>
	x		x	*	*		C. of E. Men admitted to post-graduate and mature-students courses
	s		s				Own all-age boarding school. Nature Study a special feature
		x	s	*			Mainly coll. for mature students
		x	s	*	*		R.C. <i>Science, Woodwork, Metalwork</i> wings
		x	x		*		Mostly mature students
	x						C. of E.
	s		x	*			1-yr professional course for <i>Music</i> specialists
	s						
		x	x	*			Mainly day coll. - some resident women
							R.C.
	s		s				
				*			Men are only accepted as mature students
							French Jnr/Secondary only
				*			<i>Youth Work</i>
				*			Only students from 25 yrs - 45 yrs

Opportunities After O-level

Constituent Colleges of each Area Institute of Education	Number of Students	Age Ranges												
		Nursery	Nursery/Infant Infant	Infant/Jnr	Junior	Jnr/Secondary	Secondary	Mathematics	Divinity	French	General Science	Physics/ Chemistry	Biology	Handicraft
Northern Counties, Newcastle	430 MX		*		*	*	*	X	X			X	X	
St Mary's, Newcastle	600 W		*	*	*	*	S.M.	X	X	X		X	X	
NOTTINGHAM INSTITUTE Bishop Grossetesse	450 W		*	*	*	*	S.M.	X	X		X			
Derby Diocesan Eaton Hall, Retford	498 MX 310 MX	*		*		*	S.M.	X	X	X			X	
Kesteven	410 MX		*		*	*	S.M.	X	X	X	X		X	
Loughborough	890 MX		*		*		*	X	X		X	X	X	X
Mary Ward														
Matlock Nottingham	450 MX 700 MX		*		*		S.M.	X	X			X	X	
			*	*	*	*	*	X	X	X	X	X	X	
OXFORD INSTITUTE Culham	380 M					*	*	*	X	X	X	X		X
Far Bletchley North Buckinghamshire	480 W		*	*	*			X	S				S	
Newland Park	375 MX					*	*	X	X			X	X	X
Westminster	550 MX					*	*	X	X	X	X	X	X	X
READING INSTITUTE Bishop Otter, Chichester	470 MX	*	*		*	*	S.M.	X	X		X			X
Bulmershe, Reading	600 MX		*	*	*	*		X		X	X			
Easthampstead Park	224 W		*		*	*								

Additional Subject Courses				Shortened Courses for Mature Students	Post-Graduate Courses	Degree Courses	Special Features
Needlework	Drama/Speech	P.E. - Men	P.E. - Women				
	x					*	Home Economics - Hons. course available
x			x		*	*	R.C. Grammar course for graduates. Social Studies
	x	x	x		*		C. of E. Men accepted as day students. Secondary courses only for Maths. and Divinity
		x	x		*		C. of E. P.E. wing - women
		x	x		*		Some men for 1-yr Handicraft course, and as day students
					*		Youth Work
					*	*	Grammar course P.E. wing. Spec. Handicraft, women - Primary course only
					*		Inquiries to Loreto College, Keyworth, Notts.
					*		Science. Mathematics. Music
					*		C. of E. Youth Leadership. Supplementary course for teaching backward children
					*		Coll. year Jan. - Dec.
					*		A new college for men. Opens Jan. 1966. Applications considered after April 1965. Details from Chief Education Officer, County Offices, Aylesbury, Bucks.
					*		General course with Youth Leadership bias
					*	*	Methodist
					*		C. of E. Spec. P.E. - women
					*		History and Geography students, possibility of attending Reading University lectures

Opportunities After O-level

Constituent Colleges of each Area Institute of Education	Number of Students	Age Ranges													
		Nursery	Nursery/Infant	Infant	Infant/Jnr	Junior	Jnr/Secondary	Secondary	Mathematics	Divinity	French	General Science	Physics/ Chemistry	Biology	Handicraft
SHEFFIELD INSTITUTE															
Doncaster	420 W			*	*	*	*		X	X	X		X	X	
Sheffield, City of	800 MX			*	*	*	*	*	X	X	X	X	X	X	X
Swinton Day	250 MX			*		*		*	X	X		S	S	X	
Thornbridge Hall, Bakewell	200 W			*	*	*			X		X			X	
Totley Hall, Sheffield	220 W			*	*	*		*	X	X					
Wentworth Castle, Barnsley	166 W			*		*			X	S				X	
SOUTHAMPTON INSTITUTE															
Bognor Regis	300 MX			*	*	*	*	*	X	X			X	X	
Immaculate Conception, Southampton	460 W			*	*	*	*	*	X	X	X		X	X	
King Alfred's, Winchester	670 MX			*		*	*	*	X	X	X	X			X
Portsmouth	505 MX			*		*	*	*	X	X		X		X	
Weymouth	280 W			*	*	*	*	*	X	X		X			
WALES INSTITUTE															
Bangor Normal	720 MX			*	*	*	*	*	X	X		X	X	X	X
Caerleon, Newport	600 MX				*		*		X	X				X	X
Cardiff, City of Glamorgan, Barry	450 MX 500 MX				*		*	S.M.	X	X	X	X			
					*		*		X	X		X		X	
St Mary's, Bangor Swansea	330 W 500 MX	*	*	*	*	*	*	S.M.	X	X		S		X	
			*	*	*	*	*		X	X			X	X	
Trinity Coll., Carmarthen	450 MX			*	*	*	*	S.M.	X	X				X	X
Cartrefle, Wrexham	450 W			*	*	*	*		X	X		X		X	
N. IRELAND															
Stranmillis, Belfast	1000 MX			*	*		*	*	X	X		X			

All Welsh colleges provide courses in Welsh

Teacher Training

Additional Subjects Courses				Shortened Courses for Mature Students	Post-Graduate Courses	Degree Courses	Special Features
Needlework	Drama/Speech	P.E. - Men	P.E. - Women	Other Subjects			
x	x	x		Woodwork, Metalwork, Social Studies	*	*	Advanced P.E. - men. Spec. Woodwork and Metalwork
		x		(No Music)	*		Mainly for mature students. Coll. year Jan. - Dec.
			x	(No Music)	*		Secondary Housecraft specialist course
		x	x		*		Admission to Secondary course limited
			x	German	*		R.C. Men accepted as day students
	x			Needlework included in Art and Craft, Physics	*		C. of E. Secondary students take Maths., P.E., Physics or Woodwork and Metalwork. 1-yr course in Handicraft for those holding City and Guilds qualification
	x		x		*		Secondary students take Science (or Maths.) with Physics. Youth Work. Crafts - women only
			x		*		
x	x	x	x	Physical Science, Horticulture, Nature Study, Technical Drawing			Spec. Housecraft Handicraft - men only
x	x	x					
x	x	x	x	Dramatic Art and Technique, Junior Science, Nature Study			P.E. wing - men. Spec. Art and Craft P.E. wing course
x			x				Church in Wales
x				Commerce, Typing or Shorthand, Youth Leadership			Secondary students must take Commerce, or Youth Leadership
x	x	x	x	Horticulture, Rural Science, Physics	*		Church in Wales
x			x		*		
		x	x	Commerce, Housecraft			Supplementary 1-yr course for teaching backward children

Opportunities After O-Level

Use of the Chart

The Chart is a guide to the age-ranges and subjects available in the Colleges of Education providing a general course. (A few of these colleges also provide specialist courses in other subjects.) For more detailed information, see the *Handbook on Training for Teaching*.

All the colleges on the chart (except eight) provide courses in English, History, Geography, Music, and Art and Crafts. Where one or more of these subjects is not included, it has been noted beside the college. The chart also gives details of other subject-courses available, which colleges offer post-graduate and/or degree courses and/or shortened courses for mature students, and whether the colleges are mixed or single-sex.

The latest college prospectuses, the Institute Handbooks, the A.T.C.D.E. Handbook, and the latest information sheets issued by the clearing-house were consulted in forming this chart. It gives main and subsidiary subject-courses, but these are subject to rapid alteration and you are advised to write for the latest prospectus from the particular colleges in which you are interested. The most recent changes of all are included in the Further Information sheets which are supplied by the clearing-house. The clearing-house amends and reduplicates the Further Information sheets every four weeks.

To meet the Department of Education and Science's balance-of-training scheme, in many colleges at the present time students wishing to teach in secondary schools are requested to take Divinity, General Science, Handicraft, Mathematics, or Physical Education as one of their main subjects, since there is a shortage of specialist teachers in these subjects.

Post-graduate courses are offered at several colleges (see Chart C).

Cavendish Square College provides only post-graduate courses, leading to the award of the Certificate in Education.

Supplementary Courses

Many colleges offer supplementary courses in various subjects. They are not all noted in this chapter, since it is mainly intended for school-leavers, who are not immediately concerned with them. Details of supplementary courses are available in the Department of Education and Science's *Programme of One-Year Courses and One-Term Courses for Qualified Teachers, 1964-65*.

Froebel Courses

Further details concerning these courses can be obtained from the **National Froebel Foundation**.

Science and Handicraft Courses

A special note concerning the Science and Handicraft courses is included here, in order to clarify any points which might arise from the Chart.

SCIENCE: The Science courses include some Physics, Chemistry, and Biology, and in most cases Science is considered as two main subjects. Students generally choose a branch of science in which they wish to specialize, and follow the other branches at subsidiary level. Therefore, although Biology, for example, may not be marked on the Chart, it may be taken as a main subject in the Science course. Colleges providing science wings are shown on the Chart. Colleges without science wings offering General Science as a main subject normally include some Biology, Chemistry, and Physics in the course.

HANDICRAFT. Handicraft consists of carpentry, metalwork, and sometimes silversmithing, etc., and it is occasionally included in the Art and Craft courses. At present teachers of Handicraft are in demand. Specialist handicraft courses are marked on the Chart. One-year courses for mature candidates who already have industrial or trade experience, and have already passed the First Examination and Section One of the Second Examination for the City and Guilds of London Institute's Handicraft Teacher's Certificate, are available at City of Leeds Training College, Beckett Park, Leeds 6, Yorkshire, and King Alfred's College, Winchester, Hampshire.

Nature of the Courses

The courses are designed to teach students the art of teaching and the principles upon which the art is based, as well as giving scope for the students' development in their own particular fields. However, with the great expansion of places available at Colleges of Education, and the introduction of the third year, methods of training and study are in a considerable state of flux, and it is a particularly difficult time to say anything about them with any certainty that the information will be true in two years' or even one year's time.

At most General Colleges of Education, students join a section to learn to teach children of the secondary age or of the junior age-

Opportunities After O-level

group or the infants or the nursery age-group, although groups amalgamating the ages (junior /infant, nursery /infant, etc.) have now been formed in many colleges. The most important grouping for a great many students is the junior/secondary one. There is a special need for primary school teachers while there is less nursery training than for any other group. Most colleges try to make transfers to alternative age ranges possible, when this is considered desirable.

The course can be described in four parts, though it must be remembered that the four parts run concurrently. Within the education group (i.e. junior, infant, etc.) students choose one main subject (or in many cases two) for further study. The choice often depends upon A-level results, except in the case of a practical subject such as Physical Education. In most cases the secondary modern student will subsequently specialize in a secondary modern school in the subjects chosen for deeper study at college. In some colleges a further ancillary subject is also studied, but owing to a busy timetable a student will probably only attend a limited number of the lectures in the ancillary subject. Students then are expected to have a more detailed knowledge of at least one subject at the end of the course.

Most General Colleges of Education offer only the more usual Arts and Science subjects, since in most cases it would be financially impossible for the smaller colleges to maintain facilities for the less common subjects. It is possible to specialize in practical subjects such as Physical Education or Housecraft, but if you are particularly keen on either of these you might be better advised to attend a specialist college in the subject. Many General Colleges of Education, however, have good facilities for certain practical subjects. Some of the less common subjects offered at Colleges of Education are shown on Chart C.

Secondly, as well as specializing in certain subjects, students attend lectures in education, which deal with the principles of education, educational history, teaching methods, child psychology and development and philosophy. The lectures are designed to help the student to understand the natural growth of the child in all its aspects, and the community in which the child grows up.

The practice of education forms the third and most important part of the course. Most colleges try to relate theory and practice very closely, and work done in schools is one of the chief activities of the

course. Students attend schools, where they observe teaching methods and the children, and teach the children themselves. The amount of teaching done by students varies from college to college, but an average of fifteen weeks is done by most students. Lecturers visit the students during the lessons in order to give advice.

Finally, during the course students attend lectures in such basic subjects as English Language and Mathematics. The nursery, junior, and infant groups, and sometimes the secondary group also, attend a certain number of lectures in all subjects taught in their type of school, such as Nature Study, Art, etc.

Certificate examinations conducted by the University Institutes (or Schools) of Education are usually held at the end of the course. Goldsmiths' College sets its own examinations. In certain subjects there are second-year examinations, and less frequently first-year examinations, although this depends on the various institutes and colleges. Some colleges and institutes have a system of continuous assessment throughout the course and do not hold examinations (the prospectuses will tell you which ones). Internal examinations vary according to the different colleges, some holding their own examinations at the end of each year, others at the end of the second year.

Courses will generally vary from college to college, but this general outline will give you some idea of the type of course which you will follow.

Facilities for Mature Students

Most colleges accept and welcome mature students. In 1962 there were 4,500 students over the age of twenty-five. A large number of colleges provide shortened courses for mature students who can satisfy the Institute of Education that they will be able to complete the course in a shorter time. Those which do are marked on Chart C. Usually mature students do not have to reside at the college, but may do so if they prefer. Further details of adult education are obtainable from the Teachers' Branch of the **Department of Education and Science**. Of the day colleges listed below eight are intended mainly for mature students. Bordesley, Mather, Middlesbrough, Oastler, and Poulton are primarily for school-leavers, although Oastler College does provide shortened courses for a small number of mature students.

Opportunities After O-level

Day Colleges

The following provide three-year courses for mature and younger students. They are mixed colleges unless otherwise stated.

Essex. Brentwood Training College,* Sawyers Hall Lane, Brentwood

Lancashire. Chorley Day Training College,* Union Street, Chorley
Manchester Training College (men only), Long Millgate, Manchester 3

Mather College,† Whitworth Street, Manchester 1

Poulton Day Training College,‡ Breck Road, Poulton-le-Fylde, near Blackpool.

London. Sidney Webb Day Training College,* 125 New Cavendish Street, London W1

Northumberland. Newcastle-upon-Tyne Training College,* Northumberland Road, Newcastle-upon-Tyne

Staffordshire. Wolverhampton Teachers College for Day Students,* Walsall Street, Wolverhampton

Warwickshire. Bordesley Day Training College,† Camp Hill, Birmingham

Yorkshire. Oastler College,* Buxton Road, Huddersfield

James Graham College,* Lawns House, Chapel Lane, Farnley, Leeds

Swinton Day Training College,* East Avenue, Swinton, Mx-borough

Middlesbrough Day Training College, Borough Road, Middlesbrough

Training to Teach Handicapped, Blind and Deaf Children (1964-5)

A one-year supplementary course is taken by qualified teachers (or graduates) with five years' teaching experience.

Blind Children

A one-year supplementary course for qualified teachers is available at the Department of Education, Birmingham University (applications by 15 March).

* Shortened courses for mature students.

† Women only.

‡ Some women resident students.

Deaf Children

A one-year supplementary course for graduates (non-graduate qualified teachers are also admitted) is available at the University of Manchester Department of Audiology and Education of the Deaf (applications by 31 January).

This course may be undertaken immediately after a course of initial training.

Handicapped Children

Backward, Educationally Subnormal, Maladjusted, and Physically Handicapped Children.

Berkshire. Culham College, Abingdon

Birmingham. City of Birmingham Training College, Westbourne Road, Birmingham 15. *Applications by 25 March*

Bristol. Redland College, Redland Hill, Bristol 6. *Applications by 1 January*

Coventry. City of Coventry Training College, Coventry. *Part-time course*

Derbyshire. Matlock Training College, Matlock

Leeds. City of Leeds Training College, Beckett Park, Leeds 6

Leicester. City of Leicester Training College, Scraptoft, Leicester. *Applications by 29 February*

London. Avery Hill Training College, Eltham, London SE9

Maria Grey College, 300 St Margaret's Road, Twickenham, Middlesex

St. Mary's College, Strawberry Hill, Twickenham, Middlesex

Manchester. Manchester Training College, Long Millgate, Manchester 2

Sheffield. City of Sheffield Training College, Collegiate Crescent, Sheffield 10

Wales. Monmouthshire Training College, Caerleon, Monmouthshire

Courses leading to the award of the Diploma in Education of Backward Children, the Diploma in Education of Educationally Subnormal Children, the Diploma in Education of Handicapped Subnormal Children, and the Diploma in Education of Maladjusted Subnormal Children are available at some university Departments of Education and some Institutes of Education for experienced teachers. Details of these courses are contained in the Department

Opportunities After O-level

of Education and Science's *Programme of One-Year Courses and One-Term Courses for Qualified Teachers*.

Housecraft. Women only.

Specialist Colleges

The following colleges provide specialist courses in Housecraft for secondary-school teaching:

Lancashire. F. L. Calder College of Domestic Science, 18 Dowsefield Lane, Yewtree Road, Liverpool

Elizabeth Gaskell College,* Hathersage Road, Manchester 13

Leicestershire. Leicester Domestic Science Training College, Knighton Fields, Leicester

London. Battersea Training College of Domestic Science,* Manor House, 58 North Side, Clapham Common, London SW4

Shropshire. Radbrook College, Shrewsbury

Somerset. Bath College of Domestic Science, Sion Hill Place, Bath

Sussex. Seaford Training College of Housecraft, Cricketfield Road, Seaford

Wales. Training College of Domestic Arts for South Wales and Monmouthshire, Llantrisant Road, Llandaff, Cardiff

Yorkshire. Ilkley College of Housecraft, Wells Road, Ilkley

Yorkshire Training College of Housecraft, Vernon Road, Leeds 1

Totley Hall Training College of Housecraft,* Sheffield

These eleven specialist colleges for Domestic Science are all maintained by Local Education Authorities, and all are for women.

General Colleges providing a Specialist Course in Housecraft

Essex. St Osyth's College, Clacton-on-Sea

Gloucestershire. Gloucestershire Training College, Oxstalls Lane, Gloucester

London. Digby Stuart College, Roehampton Lane, London SW15

Sidney Webb Day Training College, 125 New Cavendish Street, London W1

Northumberland. Northern Counties College, Newcastle-upon-Tyne

***Staffordshire.** County of Stafford Training College, Madeley, near Crewe

Wales. Bangor Normal College, Bangor, Caernarvonshire

* Also provides a general course although it is a specialist college.

**Worcestershire. City of Worcester College, Henwick Grove,
Worcester**

Courses at most of the colleges include Applied Science, Cookery, Household Management, and Needlework; eight colleges which also provide three-year general courses have specialist Housecraft courses (*see* Chart C): all but one of these (Digby Stuart College in London, a Roman Catholic foundation) are maintained by Local Education Authorities. Half of these colleges also take both men and women.

Physical Education

Specialist Colleges

The following are specialist Physical Education colleges offering three-year courses. Most general colleges offer Physical Education as a main subject.

WOMEN

Bedfordshire. Bedford College of Physical Education, Lansdowne Road, Bedford (L.E.A.)

Kent. Dartford College of Physical Education, Oakfield Lane, Dartford (L.E.A.)

Nonington College of Physical Education, Nonington, Dover (L.E.A.)

Lancashire. I. M. Marsh College of Physical Education, Berkhill Road, Liverpool 17 (L.E.A.)

Sussex. Chelsea College of Physical Education, Carlisle Road, Eastbourne (L.E.A.)

Warwickshire. Anstey College of Physical Education, Sutton Coldfield (L.E.A.)

Yorkshire. Lady Mabel College of Physical Education, Wentworth Woodhouse, Rotherham (L.E.A.)

MEN

Yorkshire. Carnegie College of Physical Education, Beckett Park, Leeds 6 (L.E.A.)

General Colleges with Physical Education Wings

WOMEN

Derbyshire. Derby Diocesan Training College, Uttoxeter, New Road, Derby (C. of E.)

Opportunities After O-level

Durham. Neville's Cross College, Durham (L.E.A.)
Gloucestershire. St Mary's College, Cheltenham (C. of E.)
London. Avery Hill College, Eltham, London SE9 (L.E.A.)
Sussex. Bishop Otter College, Chichester (C. of E.)
Wales. Glamorgan Training College, Barry (L.E.A.)
Warwickshire. City of Coventry Training College, Charter Avenue, Canley, Coventry (L.E.A.)
Yorkshire. Endsleigh Training College, Hull (R.C.)

MEN

Cheshire. Chester College, Chester (C. of E.)
Devonshire. St Luke's College, Exeter (C. of E.)
Gloucestershire. St Paul's College, Cheltenham (C. of E.)
Leicestershire. Loughborough Training College, Loughborough (L.E.A.)
London. Borough Road College, Isleworth, Middlesex (Vol.)
St Mary's College, Strawberry Hill, Twickenham (R.C.)
Staffordshire. County of Stafford Training College, Madeley, near Crewe (L.E.A.)
Wales. City of Cardiff Training College, Cyncoed, Cardiff (L.E.A.)
Yorkshire. City of Leeds Training College, Beckett Park, Leeds 6 (L.E.A.)
St John's College, York (C. of E.)

Students are able to develop their own abilities, mainly in Athletics, Dance, Games, Gymnastics, and Swimming, and opportunities are available for them to acquire some knowledge of other less common activities such as Archery, Canoeing, or Mountain-craft. Health Education, a study of the human body, and remedial exercises form part of the course, which (apart from the subjects mentioned above) is on the same lines as at the general Colleges of Education.

Modern Educational Dance

Specialist College

Trent Park, Barnet, Hertfordshire.

A course in Modern Educational Dance can be taken at the Art of Movement Studio, Woburn Hill, Addlestone, Surrey, by teachers who have successfully completed a one-year course of professional training in one of the technical training colleges. A two-year course

at Addlestone, followed by a year's professional course at Trent Park College, also qualifies a student to teach.

Further information concerning Physical Education can be obtained by members from the **Physical Education Association**, which exists to encourage and facilitate the scientific study of the physical health of the community through physical education. Membership is open to suitably qualified candidates.

Youth Leader Training Colleges

The National College for the Training of Youth Leaders, Humberstone Drive, Leicester; 140 students. Many colleges (*see* Chart C) and universities offer special courses in youth work.

Art, Music, Speech, and Drama

Specialist Colleges of Art, Music, and Drama

Hertfordshire. Trent Park, Barnet

Wiltshire. Bath Academy of Art, Corsham

Yorkshire. Bretton Hall, Wakefield

Most general Colleges of Education offer Art, Music, and Speech and Drama as main courses (*see* Chart C).

Graduate Art Teacher Training

Students wishing to follow a course in Art with a view to eventually becoming an Art Teacher will need to obtain first the qualification Diploma A.D. (*see* Chapter 5) and then proceed to a post-graduate course in teacher training at one of the centres listed below:

Durham. King Edward VII University School of Fine Art, King's College, University of Durham

Gloucestershire. West of England College of Art, Queens Road, Clifton, Bristol 8

Hampshire. Municipal College of Art, Lansdowne, Bournemouth

Lancashire. College of Art, Hope Street, Liverpool 1

Regional College of Art, Cavendish Street, All Saints, Manchester 15

Leicestershire. College of Art, The Newarke, Leicester

London. Hornsey College of Art and Crafts, Crouch End Hill, London N8

Goldsmiths' College, School of Art, New Cross, London SE14

Opportunities After O-level

**The Institute of Education, University of London, Malet Street,
London WC1**
**Northumberland. Department of Education, 13 Leazes Terrace,
Newcastle-upon-Tyne 1**
Sussex. College of Art and Crafts, Grand Parade, Brighton
Wales. College of Art, The Friary, Cardiff
School of Art and Crafts, Alexandra Road, Swansea
Warwickshire. College of Art and Crafts, Margaret Street, Birmingham 3
Yorkshire. College of Art, Vernon Street, Leeds 2
College of Art, Brincliffe, Psalter Lane, Sheffield 2

Students having completed the Diploma A.D. course and wishing to proceed to a one-year full-time professional post-graduate course of teacher training should submit applications for registration by mid October in the final year of their Diploma A.D. course to the Secretary, Graduate Art Teacher Training Centre, Clearing-House, College of Art, Leicester. The appropriate application forms are available from the clearing-house.

Speech and Drama

At the specialist Speech and Drama Colleges students study both theoretical and practical subjects, in classes that range from Movement and Voice Training, Play Production, and Stage Management to English Literature, Spoken English, and Phonetics. They are expected to develop their own personal abilities in all branches of this work. Students are given a thorough grounding in education, and teach in junior, secondary, and independent schools. Their training equips them to teach adults as well as children, and they are qualified to teach English and Speech and Drama. The course lasts for three years, and the Diploma qualifies its holder to teach. The following establishments provide this course:

Kent. Rose Bruford Training College, Lamorley Park, Sidcup*
**Lancashire. Manchester Northern School of Music, 91 Oxford Road,
Manchester 1**
**London. Central School of Speech and Drama, Embassy Theatre,
London NW3***
**Guildhall School of Music and Drama, John Carpenter Street,
London EC4 (two-year course followed by one-year professional
course at Trent Park)**

* One year supplementary courses for already qualified teachers.

New College of Speech and Drama, North End Road, London NW11

Wales. City of Cardiff College of Music and Drama, The Castle, Cardiff (a two-year course leading to the award of the College Diploma; candidates whose admission was jointly approved by this college and by the City of Cardiff Training College may proceed to the latter for a one-year course of professional training leading to the award of the Certificate in Education; this course has been limited to six students per annum).

Music

One-year professional courses of training for teaching music are now carried out in certain training colleges (*see* Chart C) and university Departments of Education, for students with a two-year or a three-year qualification in music obtained in a College of Music where the courses no longer include any teacher training.

Most Colleges of Music offer graduate and non-graduate courses which are suitable for intending teachers but do not usually cover teacher training. The ability to play a keyboard instrument is usually necessary. Graduate diplomas are recognized by the Department of Education and Science, but most other diplomas are only so recognized if a one-year course at a training college has also been successfully pursued.

The following are some of the colleges which provide courses qualifying students to teach music.

Devonshire. Dartington Music School, Totnes

Lancashire. *Northern School of Music, 91 Oxford Road, Manchester 1

***Royal Manchester College of Music, Devas Street, Oxford Road, Manchester 15**

London. The Dalcroze Society (Inc.) Training Centre and London School of Eurhythmics, c/o London College of Music, 47 Great Marlborough Street, London W1

***Guildhall School of Music and Drama, John Carpenter Street, London EC4**

***London College of Music, 47 Great Marlborough Street, London W1**

Royal Academy of Music, Marylebone Road, London NW1

***Royal College of Music, Prince Consort Road, London SW7**

***Trinity College of Music, Mandeville Place, London W1**

*** These colleges provide graduate courses.**

Opportunities After O-level

Scotland. The Royal Scottish Academy of Music, St George's Place,
Glasgow C2 (after further training in teaching)

Wales. *The Colleges of The University of Wales

***Warwickshire.** *Birmingham and Midland Institute School of
Music, Paradise Street, Birmingham 1

Technical Colleges of Education

In Technical Teacher Colleges of Education the course is designed to provide a practical appreciation of the principles of education with special reference to the needs of further education and of technically or commercially biased education at secondary level. The History of Education, English, and Social Studies are included in the course. Teaching practice is given in Technical Colleges and similar educational establishments.

The course consists of studies in the theory and practice of education, all of which are biased towards further education. The Theory of Education contains studies in the Aims of Education, the History of Education, Educational Psychology, and the social aspects of education.

The emphasis in all of these studies is such as to prepare the teacher for his or her job with young workers. These colleges offer a full-time one-year pre-service course (September to July) and courses for serving teachers in further education.

Candidates require a University Degree, a Higher National Certificate, or similar qualification, as well as wide industrial and commercial experience. For the teaching of the more practical aspects of industry and commerce the minimum requirements are a full Technological Certificate of the City and Guilds of London Institute, A-level certificates in Shorthand-Typing, or a similar qualification. In general, the minimum age for entry is twenty-five.

The following are the Technical Training Colleges which are outside the clearing-house scheme; application should be made direct to the colleges.

Lancashire. Bolton Training College, Chadwick Street, Bolton

London. Garnett College, Downshire House, Rochampton Lane,
London SW15

Staffordshire. Wolverhampton Technical Teachers College, Comp-
ton Road West, Wolverhampton

* These colleges provide graduate courses.

**Yorkshire. Huddersfield Training College for Technical Teachers,
Holly Bank Road, Lindley, Huddersfield**

Four-Year Degree Courses at Colleges of Education

Provision is made at some colleges in certain subjects for a four-year combined degree and training course, or a three-year degree course followed by one year of professional training. Candidates for entrance must satisfy the matriculation requirements of the University and Faculty at which they wish to study (*see* Chapter 1).

University of Durham

The three Colleges of Education in Durham which run three-year general courses also provide for residence and supervision of students, who may take any degree course at the University of Durham, to be followed by a year of professional teacher training:
WOMEN. St Hild's College, Neville's Cross Training College
MEN. The College of the Venerable Bede

University of Liverpool

Our Lady's Training College, Mount Pleasant, Liverpool, provides a three-year general course and arranges for students to take any B.A. or B.Sc. degree in the University of Liverpool, to be followed by one year's professional training. The College is a Roman Catholic foundation for women.

University of London

Four colleges in London provide for students taking B.A. or B.Sc. general external degrees of the University of London in certain subjects, as shown in the table overleaf.

Teacher Training in Scotland

There are considerable differences in the training of teachers between Scotland and the rest of Britain.

Entrance Requirements

With the exception of holders of recognized Diplomas in Educational Handwork, Physical Education, Art, Music, and other 'technical' subjects, all men intending to become teachers in

Opportunities After O-level

Table IX. Four-Year General Degree Courses of London University

	Borough Road College (Undenom.)	Goldsmiths' College (Undenom.)	College of St Mark & St John (C. of E.)	St Mary's, Strawberry Hill (R.C.)
	Men and Women	Men and Women	Men	Men
<i>B.A. General</i>				
Theology ..		*	*	
English ..	*	*	*	*
French ..	*	*	*	*
History ..	*	*	*	*
Geography ..	*	*	*	*
Pure Mathematics		*		
Applied Mathematics		*	*	
Music ..		*	*	
German ..		*		
Latin ..		*		*
Psychology ..		*		
<i>B.Sc. General</i>				
Mathematics ..	I	I	I	I
Pure Mathematics	II	II	II	
Applied Mathematics	II	II	II	II
Pure Mathematics with Statistics ..		II		
Physics ..	I & II	I & II	I & II	*
Chemistry ..	I & II	I & II	I & II	*
Psychology ..	I	I		I
Zoology ..	I	I & II	I & II	I & II
Botany ..		I & II	I & II	*
Geology ..		I	I	
Biology ..			I	*
Geography ..		I & II	I & II	I & II

I and II refer to Parts I and II of General Degree.

Goldsmiths' College also offers courses for B.A.(Hons.) External in English, Geography, History, and for the B.Mus. External.

Scotland must be university graduates. Although women students do not need to be university graduates, a considerable proportion do in fact take a university degree as a prelude to teacher training.

Broadly speaking, if you go straight from school to a College of Education, or to a central institution, with a view to becoming a teacher, you will require a certificate in Higher English, one other Higher pass, and three Ordinary passes in the Scottish Certificate of Education. In the College session 1964-5 and thereafter, an additional pass in the Ordinary grade will be required, and intending primary-school teachers will need a pass in Arithmetic. If you intend to go to a university you must satisfy the University requirements, which are more stringent and which vary according to the university courses to be attended. Further details concerning educational entrance requirements are contained in the Scottish Education Department's Circular 496.

The Scottish Colleges of Education are not included in the clearing-house scheme, and applications should be made direct to the Principals.

Final Qualification

There are four types of Teachers' Certificates:

THE TEACHER'S SPECIAL CERTIFICATE. This is the highest qualification in teaching, and the holder can teach special secondary school subjects, such as English or Mathematics, at any level in the secondary school. It is awarded to those who have obtained a first, second, or third class honours degree of a Scottish university in the subject concerned, and who have also completed a course of teacher training, normally lasting one year, at a College of Education.

THE TEACHER'S GENERAL CERTIFICATE. This qualifies the holder to teach in any primary school. To obtain it men must first graduate at a university and then successfully complete a one-year course at a College of Education. Many women qualify in the same way, but others enter a College of Education straight from school and complete a three-year course of training there.

THE TEACHER'S GENERAL CERTIFICATE WITH AN ADDED QUALIFICATION TO TEACH IN SECONDARY SCHOOLS. Graduates who have specialized to a minor extent in a particular subject at the university can have their one-year course for the Teacher's General Certificate adjusted to enable them to qualify not only as

Opportunities After O-level

primary teachers but also as teachers of the subject in the less advanced classes of the secondary school.

THE TEACHER'S TECHNICAL CERTIFICATE This is a qualification to teach a subject such as Art, commercial subjects, Educational Handwork, Homecraft (cookery, needlework, etc.), Physical Education and Music, at any level and in any type of school. In most subjects it is awarded to a person who holds an approved Diploma (e.g. of a College of Domestic Science) or equivalent qualification in the subject concerned, and who then successfully completes a course of teacher training, normally of two terms, at a College of Education. This course may in the future be extended to three terms. In Physical Education and Educational Handwork, however, it is usual to take both diploma training and teacher training together at the College of Education in a three-year course.

The Scottish colleges offer a similar variety of subjects to the English Colleges of Education. Details of the subject-courses are contained in the prospectuses, which can be obtained direct from the colleges concerned.

Diploma Subjects

An Associateship (or a Diploma) of the following central institutions is acceptable for purposes of admission to a College of Education, they are available in the following subjects:

APPLIED SCIENCE

Robert Gordon's Technical College, Aberdeen
Technical College, Dundee
Heriot-Watt College, Edinburgh
Scottish Woollen Technical College, Glasgow

ART

Robert Gordon's Technical College (Gray's School of Art), Aberdeen
Duncan of Jordanstone College of Art, Dundee
College of Art, Edinburgh
School of Art, Glasgow

COMMERCE

Technical College, Dundee
Heriot-Watt College, Edinburgh
Scottish College of Commerce, Glasgow

DOMESTIC SCIENCE

School of Domestic Science, Robert Gordon's Technical College,
Aberdeen

College of Domestic Science, Edinburgh

Glasgow and West of Scotland College of Domestic Science,
Glasgow

MUSIC

Royal Scottish Academy of Music, Glasgow

SPEECH AND DRAMA

College of Dramatic Art, Royal Scottish Academy of Music,
Glasgow

There are nine Colleges of Education offering courses of professional training, as follows:

College of Education, Aberdeen; College of Education, Dundee; Moray House College of Education, Edinburgh; Jordanhill College of Education, Glasgow. (These four are general colleges offering a complete range of courses except for Physical Education, courses in which for men are offered at the School of Physical Education, Jordanhill College of Education.)

Craiglockhart College of Education, Edinburgh; Notre Dame College of Education, Glasgow. (These two are colleges for Roman Catholic women, both graduate and non-graduate.) Dunfermline College of Physical Education, Aberdeen. (This college offers Physical Education courses for women.)

The remaining two colleges are new centres at Falkirk and Ayr, opened in October 1964 offering courses for non-graduate women.

Training to Teach Handicapped, Blind, and Deaf Children

Blind children: One-year course for already qualified teachers, at Moray House College of Education, Holyrood Road, Edinburgh 8.

Deaf children: One-year supplementary course at the Department of Education of the Deaf, University of Manchester; leave of absence and fees are met by the Scottish Council for the Training of Teachers.

Handicapped children: ten-month course for already qualified teachers, at Moray House College of Education, Edinburgh, and Jordanhill College of Education, Glasgow.

Further details concerning teaching in Scotland can be obtained from the **Scottish Council for the Training of Teachers.**

Opportunities After O-level

Teacher Training in Northern Ireland

There are slight variations in the courses offered and the educational requirements in the teacher training colleges in Northern Ireland. For admission to a course of teacher training, candidates must hold the Northern Ireland General Certificate in Education, or its equivalent (e.g. G.C.E.), in a minimum of six subjects at O-level, including a pass in English Language, or have a University Degree acceptable to the Ministry. Application forms should be obtained from the Ministry of Education, Dundonald House, Upper Newtownards Road, Belfast 4, and returned to the Ministry not later than 1 April, or in the case of university graduates by 1 June.

The courses offered are as follows:

Course A

Three-year; primary schools, emphasis on teaching pupils from seven to eleven.

Course B

Four-year; secondary intermediate (equivalent to secondary modern) schools, general subjects with emphasis on a selected subject, such as Art/Light Crafts; commercial subjects; Crafts (men); Housecraft (women); Mathematics; Music; Physical Education; Science; Speech and Drama. Enrolment in this course is limited: only those with suitable qualifications in the relevant subjects will be admitted.

Course C

Three-year; primary schools, emphasis on teaching pupils under eight.

Combined Course

Four-year; comprises study for a degree in either Arts or Science at the Queen's University, Belfast, followed by a year's course in a College of Education.* Enrolment for this course is limited.

Professional Training for Graduates

One-year; corresponds to the year of teacher training for the combined Course.

* The one-year post-graduate course is provided in the Department of Education of Queen's University, Belfast, and in the three General Colleges of Education.

Special One-Year Courses

These may be arranged for persons holding diplomas or certificates acceptable to the Ministry for teaching purposes.

All of the above courses are available at St Joseph's Training College, Belfast 11 (R.C., men 309); St Mary's Training College, Belfast 12 (R.C., women 396); Stranmillis College, Belfast 9 (men and women 1,200). For entrance to St Mary's and St Joseph's, candidates apply direct to the Principal. Stranmillis comes under the clearing-house scheme for candidates applying from Great Britain. Candidates applying from Northern Ireland apply through the Northern Ireland Ministry of Education.

Specialist Housecraft College

College of Domestic Science, Garnerville Rd., Belfast 4 (L.E.A., women 200); three-year course.

Specialist Physical Education College

Ulster College of Physical Education, Jordanstown, Newtownabbey, County Antrim (Women).

No colleges in Northern Ireland include courses for technical teachers or for teachers of the handicapped, deaf, or blind.

Work Pattern

A general outline of the course has been included earlier, but you will want to know more about the work done in Colleges of Education before definitely deciding to embark on teaching as a career. You must realize that the work pattern will vary considerably with each college, and that the following is intended only as a rough guide.

In many colleges the attendance at lectures is compulsory, but this is at the discretion of the Principal and /or the Academic Board of the College. The number of lectures to attend varies within the same college and between colleges, but you will probably attend between eight and thirty-six lectures a week, the rest of the time being taken up with your own work. Depending upon the individual subject and the lecturer, students write a long essay two or three times a term. Reports of visits to schools and progress with a backward reader, for example, all have to be written up each week for the education lecturer. During the course, extended essays are written about a subject of the student's choice within his or her main subjects, and some colleges require a specially long essay on Education as well.

Opportunities After O-level

Discussion forms an important part of the course, whether in the lecture-room or in a student's room perhaps at one o'clock in the morning. Where it is useful, the education groups split up to form sections, containing students from the infant, junior, and secondary-modern group. Outside lecturers are often invited to speak, and questions and discussion usually follow.

The school-practice weeks are often the busiest part of the course for both students and lecturers. Lessons have to be planned and the outline of the lesson written up. You may find yourself teaching a subject which you know very little about. Some colleges will require you to write up reports of every lesson given, noting where you were successful and where you made mistakes. So it continues until the period of school practice is over. Much importance is attached to school practice in your final assessment. Students who know their subject but cannot communicate it to the class will not make good teachers.

In the vacations many colleges like students to spend some time in special schools, observing and teaching handicapped children, observing normally healthy children, following up some education study, doing some kind of social work, or doing a vacation job in order to meet and understand different kinds of people, and particularly the type of person from whose home their future pupils will come.

About seven per cent of College of Education students fail to complete the course successfully. Usually those who fail either are unsuited to teaching or have not spent enough time on their work to reach the required standard. The course is not easy, and school-practice time can be arduous.

Social Aspects of College Life

The social side of college is also important to a student's enjoyment of the course. Mixed colleges on the whole enjoy a fuller social life, since it is easier to organize social events. All the colleges have student clubs and societies, ranging over all kinds of subjects and activities. If a college is situated in or near a large town or a university town, students will often find many distractions from work and have to discipline themselves in the organization of their time, striking a balance between work and leisure. To a certain extent your time will be organized, since lectures may be compulsory, and at most colleges

you will be expected to return to college each night by a set time. It is generally recognized that on the whole College of Education students do not have the freedom which university students enjoy, although it is only fair to say that a move is now being made in many colleges to provide this freedom. Students in technical Colleges of Education naturally enjoy more freedom, since they are all at least twenty-five.

Residence

Depending upon the size of the college, a certain number of students live in the main college buildings, some in halls of residence and hostels or houses owned by the colleges, and some in lodgings. In the 1963-4 academic year sixty per cent of students were resident in college buildings. However, the rules applying to students living-in also apply to those living-out, and in most cases landlords are usually required to report any breach of the rules. Living in the main college buildings, you will get to know a larger number of students more quickly, and usually first-year students are given rooms in college. Some, however, prefer to live in lodgings, and second-year students' preferences are met where possible. You can waste time travelling from lodgings to college, but you must weigh up the advantages and disadvantages for yourself. The number of students in lodgings or main college buildings as a proportion of the total number of students varies, but the great majority of students live in college buildings, although some colleges are now beginning to allow students to find their own accommodation to rent; fifteen per cent of students at general colleges (other than day colleges) live at home.

The National Union of Students

Nearly all colleges have a Students' Union; the National Union of Students is a similar body which represents students nationally and internationally. It campaigns for adequate grants, good welfare conditions, and facilities for students, and engages in basic educational research. Direct benefits for its members include cheaper travel, through the **Student Travel Agency**, cheaper accommodation, vacation work services, international farm camps, summer schools, drama festivals, debates, various student publications, and a growing number of concessions at home and abroad such as cheaper theatre tickets and cheaper meals. College Unions decide whether to belong to the N.U.S. and, at the beginning of 1964, 122 training-college Unions were affiliated to the N.U.S.

Opportunities After O-level

Books Recommended

The fullest information on Colleges of Education is published in the *Handbook on Training for Teaching*, issued by the Association of Teachers in Colleges and Departments of Education, which gives a short description of each college, including the number of students, residential accommodation and amenities, the organization of college life, special features and activities of the colleges, and courses available. It is reprinted every few years, with occasional supplements.

Less detailed but also useful information is given in the Department of Education and Science's annual List 172, *Establishments for the Training of Teachers*, which gives names and addresses of the different types of colleges and tells you where to write for prospectuses.

Free pamphlets obtainable from the Department of Education and Science, Teachers' Branch, are *Becoming a Teacher*; *Teaching Handicraft*; *Teaching Housecraft*; *A Career in Education for University Graduates*; *You'd Like to Teach? A Chance for the Late Entrant*; *Programme of One-Year and One-Term Courses for Qualified Teachers 1964-5*.

Introducing N.U.S., available from the National Union of Students. Further N.U.S. publications, giving details of the Union's work and benefits, are also available.

Choice of Careers: Music, H.M.S.O.

Handbooks are available from Institutes of Education; for their addresses, see the *Handbook on Training for Teaching*.

Pamphlets are available from the **Central Register and Clearing-House**.

College prospectuses can be obtained by writing to the Principal of each college.

For Northern Irish Colleges, circular TC 5A *Admission of Students to Training as Teachers* is available free from the N.I. Ministry of Education.

Public Education in Scotland, H.M.S.O.

Pamphlets obtainable from the Scottish Education Department are *Prospects in Teaching*; *Teaching as a Career for the Undergraduate*; *Would you Like to Become a Teacher?*

For addresses, and publishers and prices see ADDRESS LIST, p. 301 and BIBLIOGRAPHY, p. 299.

3 Colleges of Advanced Technology

Chart D. First Degree and Degree Equivalent Courses at Colleges of Advanced Technology

First Degree and Degree Equivalent Courses: Qualifications Needed

Other Diploma Courses: Qualifications Needed

List of Colleges of Advanced Technology

Books Recommended

Now that the demands of technology are becoming more and more insistent in our society, a rising proportion of school-leavers must be equipped with a technical training. The content of this training depends on the age at which the student left school. This chapter, like that on universities, is mainly about those who leave school at eighteen, having taken a number of subjects (most commonly two or three) at A-level in the G.C.E. or (less often) having left school earlier and worked for their qualifications at a Technical College.

Let us suppose that they have decided against going to a university. They may have done this because they were unable to get into one, or because they were looking for a different kind of course, perhaps more closely related to industry and everyday experience, or at any rate more biased towards the practical development and application of scientific and engineering discoveries and techniques. They have heard that it is possible to take a course like this, at a standard fully equivalent to a university course, in an institution organized like a university and with students studying only at university level. What are these institutions?

At the moment they are called Colleges of Advanced Technology, mainly because they grew out of ordinary Technical Colleges. Their up-grading meant that they had to get rid of the many courses they ran for earlier school-leavers and less advanced students and concentrate solely on university-level courses and research.

At the time of going to press the title 'Colleges of Advanced Technology' was still being used, but they are soon to become universities in their own right. This means that the Diploma in Technology course will cease to exist and the colleges will be awarding their own degrees instead. For the present, however, if you take a three-year or four-year course at a C.A.T. you may receive one of several different qualifications at the end of it. You may get an internal or external degree of London University, a Diploma in Technology (Dip.Tech.) or a Diploma awarded specially by the college or by a professional

Opportunities After O-level

body. The colleges also offer post-graduate courses and facilities for research. During the 1964-5 session Birmingham hopes to start several post-graduate courses, in various departments, leading to higher degrees.

What is it like to be a student at a C.A.T.? Since some of the colleges are still smaller than most universities (their numbers range from 700 to 5,000), the range of interests and activities they can cover is necessarily less wide, apart from the obvious limitations imposed by their technological status. It is not possible for a student of Chinese to have a room next door to an engineering student, for instance, as it is in Leeds University. Nevertheless, every college has its student societies and its Students' Union, controlled by a self-governing Student Council and affiliated to the National Union of Students. The handbook of a C.A.T. like Battersea gives a fair picture of the interests and spare-time occupations of its members.

Since the C.A.T.s grew out of long-established Technical Colleges, they are sometimes housed in gloomy old-fashioned buildings close to the centre of the great industrial cities. Fortunately this situation is changing very fast indeed. All have plans for new buildings; some, like Birmingham, have remained in the centre of the city, housed in impressive new buildings and well within reach of the cultural activities of the city. Others, like Brunel, Bristol, and Bradford, are moving out to new sites on the outskirts of the cities. Their departure from the original crowded and unsatisfactory sites is making it possible for them to provide excellent up-to-date facilities for their staff and students. High on the list of their priorities are halls of residence, and some colleges already have one or two, while Birmingham is building its third and Loughborough can accommodate 1,200 students in residence. Most C.A.T.s hope to provide at least one year in a hall of residence, so that in this respect too their students will lead much the same sort of life as their contemporaries in the universities. They do not at the moment enjoy such long vacations, and vacations in some C.A.T.s are as short as a fortnight at Christmas and three weeks at Easter.

Because the C.A.T.s have a shorter academic tradition than some universities, they find it easier to experiment with new subjects and new kinds of course. The most important new development has been the 'sandwich' course, in which the student takes a period of academic work in the college and then a period of practical work in an industry or organization connected with his specialist subject. It is easy to see

how valuable this can be for a technologist (and there seems to be a preference in some engineering firms for employees coming from a C.A.T. rather than a university, because of their greater practical experience). But the Bristol College of Science and Technology is making a wider experiment and offering a 'sandwich' type of course in sociology, where a proportion of the student's time is spent in field work and practical training. Another experiment is at Battersea, where a Human and Physical Sciences course with a foreign language option includes a year's study abroad as part of the practical training. Cardiff C.A.T. is now operating a 'sandwich' course for a Diploma in Business Administration. Chelsea places less emphasis on 'sandwich' courses than some other C.A.T.s, but places more importance on the part-time courses leading to higher university degrees. Actual teaching methods used are much the same as in the universities and include lectures, tutorials, and practical demonstrations.

If you are thinking about courses in C.A.T.s, you will want to know about how your fees and maintenance can be paid. Here again there is full equality with the universities, and the detailed information about grants which you will find in Chapter 7 applies to C.A.T.s also. As soon as you know that you have been accepted by a college, you should apply to your Local Education Authority. At present the maximum grant for a London C.A.T. is £335 a year and for the others £320. In Scotland and Northern Ireland grant arrangements are different; Scottish students should apply to the **Scottish Education Department**, and students in Northern Ireland to their own Local Education Authority.

First Degree and Degree-Equivalent Courses

These differ from other university degree courses because of the professional training in industry, which must be combined with the academic studies and which lengthens these courses to at least four years. Usually six months academic study in the college alternates with six months in industry, but the 'sandwich' periods can vary; many consist of a year's 'sandwich' work with a firm in industry, half-way through a four-year course. Students following 'sandwich' courses can be either college-based or industry-based, depending on whether their entry to the course is sponsored by a firm or made direct to the college. If you are an industry-based student you may be better off financially, but college-based students sometimes have

Opportunities After O-level

Chart D. First Degree and Degree-Equivalent Courses at Colleges of Advanced Technology

BIRMINGHAM College of Advanced Technology	BRADFORD Institute of Technology	BRISTOL College of Science and Technology	LONDON Battersea College of Technology	LONDON Brunel College
Behavioural Science Biological Science Building Building Economics and Measurement Chemistry (Optional) Applied Chemistry Engineering: Chemical Civil Electrical Mechanical Production Environmental Health General Science Mathematics Mathematics (Technological) Mathematical Physics Metallurgy Ophthalmic Optics Pharmacy Pharmaceutical Technology Physics	Biology (Applied) Chemistry (Industrial) Colour Chemistry Economics Economics with Accountancy Economics with Administration Engineering: Chemical Civil Electrical Mechanical and Production General Science History/Geography History/Politics Materials Science Mathematics Modern Languages Pharmacy Physics (Applied) Politics/Administration Social Science/Business Social Science/Industrial Psychology/Industrial Sociology Social Science/Production Management Sociology/Psychology Social Studies Statistics Textile Design Textile Technology ORDINARY DEGREES Engineering General Science Mathematics and Statistics	Architecture Biochemistry (Applied) Biology (Applied) Building Technology Chemistry (Pure or Applied) Economics/ Administration Engineering: Aeronautical Electrical Mechanical Metallurgy Horticulture Mathematics Pharmacy Physics (Applied) Sociology Statistics and Operational Research	Chemistry Dietetics Engineering: Chemical Civil Electrical and Control Mechanical and Marine Human and Physical Sciences Human Relations Linguistic and Regional Studies Materials Technology Mathematics: Modern Technological Metallurgy Physical Sciences Physics PART-TIME DEGREES Music (Internal, London) Music (External, Durham)	Biology (Applied) Chemistry (Applied) Chemical Technology Engineering: Electrical Mechanical Mathematics Metallurgy Physics (Applied) (Aeronautical) Production Technology Psychology

Colleges of Advanced Technology

LONDON Chelsea College of Science and Technology	LONDON Northampton College of Advanced Technology	LOUGHBOROUGH College of Tech- nology	SALFORD The Royal College of Advanced Technology	CARDIFF Welsh College of Advanced Technology
Biochemistry (Applied) Botany Chemistry Geology Mathematics B.Pharmacy (general or single Honours) Pharmacology (Applied) Physics Physiology Zoology B.Sc. (General)	Chemistry (Industrial) Engineering: Aeronautical Airline Civil Control Electrical Instrumental and Control Mechanical Production Mathematics Mathematics (Applied) Physics (Applied) AVAILABLE IN 1966 Economics with Technology Philosophy with Physics Social Sciences	Chemistry (Industrial) Engineering: Aeronautical Automotive Automobile Chemical Civil Electrical General Industrial Mechanical Production Ergonomics and Cybernetics Foundry Technology Humanities and Technology Industrial Chemistry and Management Industrial Engineering and Management	Building Business Operation and Control Biology (Applied) Chemistry Chemistry (Applied) General Science Electronics Engineering: Aeronautical Chemical Civil Electrical Mechanical Engineering Metal- lurgy Mathematics Modern Languages Physics Physics (Applied) Social Studies	Architecture (B. Arch. Wales) Biology and Chemistry (Applied) Chemistry (Industrial) Economics (B.Sc. London) Engineering: Electrical Mechanical Structural Production Law (LL.B. London) Ophthalmic Optics Pharmacy (B.Pharm. Wales) Physics (Applied) Statistics
	DIPLOMAS Ophthalmic Optics			DIPLOMAS Architecture Business Administration Graduateship of the Royal Institute of Chemistry

Opportunities After O-level

the advantage of the wider practical experience of working in different firms. (Useful lists of firms sponsoring students can be found in the *Education Committees Yearbook*.)

From the career point of view, the degrees given by C.A.T.s are recognized as equivalent to other honours degrees and are accepted for registration for higher degrees such as M.Sc. or Ph.D. They are also recognized by professional engineering institutes as giving exemption from their associate membership examinations.

Qualifications Needed

These are identical with the requirements for entry to the University of London. Usually you need either five G.C.E. passes of which at least two must be at A-level, or four passes of which at least three must be at A-level. The subjects required depend on the course you want to study at the college. You can get full information from the Secretary, **University Entrance Requirements Department**, Senate House, University of London.

Other Diploma Courses

These may be Higher National Diplomas, awarded jointly by the Department of Education and Science and the professional institutions connected with the subject (such as the Institution of Civil Engineers for the H.N.D. in Civil Engineering), or College Associateship Diplomas, awarded by the colleges themselves. Both types of Diploma can give exemption from professional examinations of the various institutions, but regulations vary a good deal, and you should write to the appropriate organization among those listed at the end of Chapter 4 and at the end of each section in the *Careers Index* (Chapter 8).

Qualifications Needed

The entry standard for other Diploma courses is less clearly defined, and can vary from one or two A-level G.C.E. passes ('or an equivalent qualification'). Most Diploma students, however, have two A-level passes. The detailed regulations for these and all other C.A.T. courses can be obtained from the Registrars of the colleges at the addresses given below.

The C.A.T.s have now joined the Universities Central Council on

Colleges of Advanced Technology

Admissions (U.C.C.A.) and the application procedure is exactly the same as that for the other universities which is described on p. 30 in Chapter 1. However, the admissions procedure is as yet undecided and definite information will not appear until the U.C.C.A. Handbook is published in July 1965. Provisional information is obtainable from the Academic Registrars of the C.A.T.s. The minimum age of admission is normally eighteen. At the moment, competition for entry is not as severe as it is for universities, especially in engineering subjects, where there were some vacancies in 1963-4. Students over twenty-five who do not possess the normal educational qualifications may apply for a Mature State Scholarship at a C.A.T. in the same way as at a university (*see* Chapter 7).

Colleges of Advanced Technology

Gloucestershire. Bristol College of Science and Technology,
Ashley Down, Bristol 7

Lancashire. Royal College of Advanced Technology, Salford 5

Leicestershire. Loughborough College of Technology, Lough-
borough

London. Battersea College of Technology, Battersea Park Road,
London SW11

Brunel College, Woodlands Avenue, London W3

Chelsea College of Science and Technology, Manresa Road,
London SW3

Northampton College of Advanced Technology, St John Street,
London EC1

Wales. Welsh College of Advanced Technology, Cathays Park,
Cardiff.

Warwickshire. Birmingham College of Advanced Technology,
Gosta Green, Birmingham 4

Yorkshire. Bradford Institute of Technology, Bradford 7

Books Recommended

- Choice of Careers.* H.M.S.O. pamphlets on 130 different careers
- Education Committees Year Book*
- Full-Time Degree Courses outside Universities*
- Grants to Students: First Degree and Comparable Courses*
- Higher Education*

Opportunities After O-level

Higher Education in the United Kingdom

Report, National Council for Technological Awards

University and College Entrance: the Basic Facts

Which University?

Year Book of Technical Education and Careers in Industry

For prices, etc., see BIBLIOGRAPHY, p. 299.

4 Technical Colleges and Colleges of Commerce

Table X. The Technical College 'Ladder'

Courses in Technical Colleges

Table XI. Types of Technical and Commercial Colleges

Grants for Technical College Courses

Books Recommended

Regional Advisory Councils

Scottish Central Institutions

Regional Colleges

National Colleges

Other Specialist Colleges

Professional Associations Conducting Examinations

Chart E. Full-Time Diploma in Technology Courses Available at

Technical Colleges

Because the Technical Colleges in Britain grew and developed in response to a great variety of pressures and demands, it is extremely difficult to give a simple description of what they are and what they do. The courses they offer and the subjects they teach broadly determine the type of college, but the classifications attempted in this chapter are by no means rigid, and if you are contemplating a Technical College course you should always write for prospectuses to the colleges themselves. In this way you will be sure of getting up-to-date information.

One thing, however, they now all have in common. They are colleges of *further* education, which means that they provide no courses for students under fifteen, the present school-leaving age. Their courses range from those designed for pupils who may have left their secondary modern school at fifteen without any examination result, to courses for students with one or more passes in the G.C.E. at A-level, leading to the equivalent of a degree qualification.

Courses in Technical Colleges

From Table X you can see at what point your own qualifications allow you to join the ladder and thus miss one or more of the rungs; but even if you have to start at the bottom, the ladder can be climbed. A boy leaving school at fifteen could join a two-year general course, followed by O.N.D. and H.N.D. courses, and at this point he would possess a qualification equivalent to a pass or general university degree. After O.N.D. he could then, if he wished, go on to work for an honours degree, a Diploma in Technology, or membership of a professional association. The O.N.D. is the normal qualification for entrance to a Dip.Tech. Course, and the possession of H.N.D. would give him exemption from many of the examination requirements of professional associations.

The categories of student shown on the ladder may seem rather

Opportunities After O-level

Table X. The Technical College 'Ladder'

<i>Qualification</i>	<i>Student's Category</i>	<i>Point of Entry</i>
Degree or Dip. Tech. Professional Qualification	Technologist	Leaving school at 18 with 2 or more A-levels or having good O.N.D. or O.N.C. passes
Higher National Diploma Higher National Certificate	Higher Technician or Technologist eventually	Leaving school at 18 with 1 or more A-levels or O.N.D. or O.N.C.
Ordinary National Diploma Ordinary National Certificate City and Guilds Technician's Certificate	Technician	Leaving school at 15 or 16 often with O-level passes or after a Tech. General Course
City and Guilds Craftsman's or Operative's Certificate Royal Society of Arts, etc.	Craftsman Operative	Leaving school at 15 or 16 Leaving school at 15

confusing, but they correspond fairly roughly to the kind of course the student takes. For younger students, the distinction between 'operative' and 'craft' courses is not at all clear-cut, even in the Department of Education and Science circular which first used these terms. Operatives are 'the growing number of more or less skilled workers who – often in industries or processes for which there is no craft apprenticeship – carry out specific operations involving machinery or plant'. By and large, craft courses are mainly designed for apprentices; operative courses are still far from being widely developed.

Technical Colleges and Colleges of Commerce

Many school-leavers of fifteen or sixteen will go into trade apprenticeship courses, and these are dealt with more fully in the Index of Careers, Chapter 8. There are hundreds of subjects, and every trade is covered, but they are almost entirely part-time, because they are mainly designed for 'day-release' students, that is for young people in jobs whose employers release them once or twice a week or on a block-release scheme. What they learn at the Technical College is related to what they are learning at work, and neither would be complete without the other. This means that an apprenticeship course at the Technical College alone would generally not be enough to qualify for certificates such as those of the City and Guilds of London Institute: the student must also have his practical experience. At this stage, too, are the courses in commercial subjects, such as shorthand and typing, leading to certificates of the Royal Society of Arts.

You can enter the Technician stage either by leaving school at fifteen and taking the preliminary General course at the Technical College, or by staying at school until you are sixteen and passing four subjects at O-level in the G.C.E. In both cases you would qualify to enter an O.N.C. or O.N.D. course in one of a variety of subjects such as Engineering, Physics, or Chemistry. The difference between a Certificate and a Diploma is that Certificates are gained by part-time study (evening or day-release) while Diploma courses are full-time and of a rather broader range. Obviously it is very much better to take a full-time course if you possibly can, because the risk of failure or dropping out is a great deal smaller (*see* Chapter 7, page 238). If you have the appropriate O-levels, the O.N.C. can be taken after two years. You can also take the O.N.D. after two years.

Both Ordinary courses lead on naturally to H.N.C. and H.N.D. courses, or you can embark on these Higher courses if you leave school at eighteen with at least one A-level pass in the G.C.E. The H.N.C. can be taken after two years of part-time study (three years in some subjects) but is a less advanced qualification than the H.N.D. taken after three years, which is recognized as equivalent to a university pass degree. H.N.D. courses are either full-time or of the 'sandwich' type. (For a description of 'sandwich' courses, *see* Chapter 3.)

Now we move on to the most advanced courses offered in Technical Colleges, those for technologists who would normally leave school at eighteen with two or more A-levels. These are of three kinds (with roughly equal status): degree courses, Diploma in Technology courses (Dip.Tech.), and courses leading either to a college's own

Opportunities After O-level

diploma or to a qualification awarded by the various professional institutions which you will find listed at the end of this chapter. These include the important new courses in management and business studies which are being developed in many areas. Chapter 3 tells you more about the advanced courses.

A final important group of Technical College courses does not appear on the ladder, because these are not strictly relevant to the 'student categories' shown there, and intending students and their parents too often know nothing of their existence. These are the G.C.E. courses offered by many colleges, at both O-level and A-level. They could, for instance, provide an interesting intermediate stage between school and university, if you decided that you would prefer to leave school after O-level and take your A-levels at a Technical College, as more and more students are beginning to do. Equally, they provide a second chance for late-developers who missed their O-levels at school, so it would be perfectly possible, after leaving a secondary modern school at fifteen, for you to take O-levels and A-levels at a Technical College and go on from there to university or to an advanced course at the Technical College itself. You might quite likely find yourself sitting next to an Eton boy who had left school at sixteen to do the same thing; somewhere else in the class there might be a married woman trying to catch up on her education, and a student from overseas acquiring the necessary qualifications to embark on a degree course. Nor would you be confined to technical subjects – at the City of Westminster College of Commerce in London you could take your A-levels in English Literature, History, Geography, Latin, French, German, or Logic, and you could read for an Arts degree at the Liverpool and Portsmouth Colleges, among others.

So the variety of courses offered by Technical Colleges, and the possibilities of change from one course to another, or of obtaining different and higher qualifications, are very great indeed. But what about the colleges themselves, and the kind of atmosphere and teaching you will find in them?

As Table XI indicates, the three types of college offer courses at different levels and for different types of student. But remember that the lines of distinction are not always clear, and that in some Area Colleges you will find university degree courses, while less advanced work is still done in some Regional Colleges. The chart at the end of this chapter will help you to find out which colleges offer advanced courses, while students who are interested in part-time courses, or

Technical Colleges and Colleges of Commerce

Table XI. Types of Technical and Commercial Colleges

<p>350 <i>Local Colleges</i> offering courses in general education, craft training, O N C, often closely allied to main local industry</p>	<p>165 <i>Area Colleges</i> offering similar courses, but including O N D, H N C, H N D, technician courses, and a few other advanced courses</p>	<p>25 <i>Regional Colleges and Central Institutions</i> offering H N C, H N D, degree, Dip Tech and other advanced courses</p>
<p><i>Mainly part-time, although about half of the Area Colleges run full-time courses</i></p>	<p><i>Mainly full-time and 'sandwich' courses</i></p>	

courses at a lower level, should inquire from their local Technical College or College of Further Education. If the course you want is not offered there, you may find it at another local college nearby. The best guides to Technical College courses are the Directories published by the various Regional Advisory Councils on Further Education, which are listed on p 187, and which will tell you about every course in the colleges of the region. You can then get more detailed information about individual colleges from their prospectuses.

There is one further small group of colleges which should be mentioned. These are the National Colleges, which were set up to provide specialized training for one industry. Some offer only post-graduate training, so they are not of immediate interest to school-leavers. Others have courses for students who have fulfilled various G C E. or equivalent requirements. The National College of Agricultural Engineering, for example, offers a three-year full-time course leading to a College Associateship, while the National College of Food Technology has a four-year 'sandwich' course for a College Associateship and a two-year full-time course for a College Diploma.

Opportunities After O-level

You will find a list of National Colleges and their addresses at the end of this chapter.

How does the life of a Technical College student compare with the life of a university student? A good deal depends on the staff, buildings and facilities of your particular college. It is a fact that before 1956 only 160 out of 555 colleges had 300 or more books in a room called a library, and many Technical College buildings even today hark back to the nineteenth century Mechanics Institutes and night schools which shaped their early history. But many more are breaking away to new sites and new buildings. At Leeds, Huddersfield, Sheffield, Derby, Brighton, Coventry, Newcastle some of the most exciting architectural schemes in the country are going forward, with magnificent libraries, Students' Unions, and teaching blocks, while many colleges already have some residential accommodation for students or are planning it.

Another factor influencing the social life of a Technical College is the proportion of part-time to full-time students. Rugby has eighty per cent of its students working on full-time or 'sandwich' courses, while another has only four per cent. Where there is a majority of part-time students (either evening or day-release), their contacts with college life can only be intermittent and their influence on it marginal. In colleges for mainly advanced work, with a high proportion of full-time students, there is often a lively and articulate student body, with time to devote to college life and able to play a larger part in running it. Until recently, Technical College students attended the colleges in their own home areas, but now they are coming increasingly from other parts of the country. This helps to make the college itself the focus of their activities, and in Cambridge, for example, the Poppy Day fund-raising which takes the place of a student rag is organized jointly by University, Training College and Technical College students. No one would pretend that at the moment the life of a Technical College student could have the same variety of experience and personal relationships as he would enjoy at a university, but he is also unlikely to be insulated from the life of the local community in the way that university students usually are, and this can be a valuable experience both during and after his college life.

Grants for Technical College Courses

Until he is eighteen or nineteen, a Technical College student

Technical Colleges and Colleges of Commerce

normally gets his tuition free. Maintenance grants are made at the discretion of Local Education Authorities, but they are usually small. After this age, fees have to be paid by the student, unless the Local Education Authority provides financial assistance. A typical full-time course would cost a student living in the authority's area £30 a year, while an 'out-county' student might be charged £90 a year, unless his own Local Education Authority paid his fees; 'out-county' fees are hardly ever charged for advanced courses, and there is now almost complete 'free trade' between counties.

Many Local Education Authorities do make tuition and maintenance allowances on the same scale as university awards, to full-time students taking advanced Technical College courses, so it is always worth while, if you are contemplating one, to find out from your Local Education Authority what financial assistance they could provide.

Books Recommended

Careers in Technology

Grants for Higher Education

Full Time Degree Courses outside Universities

Higher Education

Higher Education in the United Kingdom

Sandwich Courses

Technical Education in Britain

Technical Education and Social Change

University and College Entrance: The Basic Facts

See also p. 177 ON COLLEGES OF ADVANCED TECHNOLOGY.

For prices, etc., see BIBLIOGRAPHY, p. 299

Regional Advisory Councils

FE Further Education FE Technological Education

East Anglia (EF) County Education Office, Stracey Road, Norwich,
Norfolk

London and Home Counties (TF) Tavistock House South, Tavistock
Square, London WC1

Midlands, East (FI) 12 King John's Chambers, Bridlesmith Gate,
Nottingham

Midlands, West (FE) Pitman Buildings, 161 Corporation Street,
Birmingham 4, Warwickshire

Opportunities After O-level

Northern (FE). 5 Grosvenor Villas, Grosvenor Road, Newcastle-upon-Tyne 2, Northumberland

North-Western (FF). African House, 54 Whitworth Street, Manchester 1, Lancashire

Scotland (TE). Scottish T.E. Consultative Council, St Andrew's House, Edinburgh 1

Southern (FE). 9 Bath Road, Reading, Berkshire

South-Western (FE). 12 Lower Castle Street, Bristol, Gloucestershire

Wales. Welsh Joint Education Committee, 30 Cathedral Road, Cardiff

Yorkshire (IE). Bowling Green Terrace, Jack Lanc, Leeds 11

Scottish Central Institutions

Aberdeen. Robert Gordon's Technical College, Schoolhill

Dundee. Technical College, 40 Bell Street

Edinburgh. Heriot-Watt College, Chambers Street

Galashiels. Scottish Woollen Technical College, Market Street

Glasgow. Scottish College of Commerce, 173 Pitt Street, C2

Renfrewshire. Technical College, Paisley

Regional Colleges

Devonshire. College of Technology, Tavistock Road, Plymouth

Durham. Technical College, Green Terrace, Sunderland

Essex. Technical College and School of Art, Longbridge Road, Dagenham

Hampshire. City College of Technology, Park Road, Portsmouth

Hertfordshire. College of Technology, Roe Green, Hatfield

Lancashire. City College of Building, Clarence Street, Liverpool 3

College of Technology, Byron Street, Liverpool 3

Leicestershire College of Technology and Commerce, The Newarke, Leicester

London. Borough Polytechnic, Borough Road, SE1

Brixton School of Building, Ferndale Road, SW4

Northern Polytechnic, Holloway Road, N7

Polytechnic, Regent Street, W1

Sir John Cass College, Jewry Street, EC3

West Ham College of Technology, Romford Road, E15

Woolwich Polytechnic, Wellington, SE18

Technical Colleges and Colleges of Commerce

Northumberland. Rutherford College of Technology, Ellison Place,
Newcastle-upon-Tyne 1

Nottinghamshire. Technical College, Burton Street, Nottingham

Staffordshire. College of Technology, College Road, Stoke-on-Trent

Surrey. College of Technology, Fassett Road, Kingston-upon-Thames

Sussex. College of Technology, Mouslecoomb, Brighton 7

Wales. College of Technology, Llantwit Road, Treforest, Glamorganshire

Warwickshire. College of Engineering Technology, Eastlands, Rugby

Lanchester College of Technology, Priory Street, Coventry

Yorkshire. College of Technology, Queensgate, Huddersfield

College of Technology, Calverley Street, Leeds 1

National Colleges

Bedfordshire. College of Aeronautics, Cranfield

National College of Agricultural Engineering, Silsoe

London. National College for Heating, Ventilating, Refrigerating,
and Fan Engineering, Borough Road, SE1

National College for the Leather Industry, 176 Tower Bridge
Road, SE1

National College of Rubber Technology, Northern Polytechnic,
Holloway Road, N7

Scotland. Scottish Woollen Technical College, Galashiels

Staffordshire. National Foundry College, Stafford Street, Wolverhampton

Surrey. National College of Food Technology, St George's Avenue,
Weybridge

Other Specialist Colleges

Hampshire. College of Air Training, Hamble Southampton

London. College for the Distributive Trades, Charing Cross Road,
WC2

Brixton School of Building, Ferndale Road, SW4

Scotland. Scottish Hotel School, Ross Hall, Crookston Road,
Glasgow, SW2

Opportunities After O-level

Professional Associations Conducting Examinations

(*See also* Careers Index)

For addresses *see* Address List p. 301

Accountancy

Association of Certified and Corporate Accountants
Institute of Chartered Accountants
Institute of Company Accountants
Institute of Cost and Works Accountants

Actuarial Work

Institute of Actuaries

Advertising

Advertising Association
Institute of Practitioners in Advertising

Agriculture

Royal Agricultural Society

Architecture

Incorporated Association of Architects and Surveyors
Institute of Landscape Architects
Royal Institute of British Architects
Town Planning Institute

Art

Royal Society of Arts

Auctioneering

Chartered Auctioneers and Estate Agents Institute
Chartered Land Agents Society
Incorporated Society of Auctioneers and Landed Property Agents

Aviation

Guild of Air Pilots and Air Navigators

Banking

Institute of Bankers

Technical Colleges and Colleges of Commerce

Bookselling

Booksellers Association

Boot and Shoe Industry

British Boot and Shoe Institution

Brewing

Institute of Brewing

Building

Building Societies Institute

Institute of Builders

Institute of Clerks of Works

Chemistry

Royal Institute of Chemistry

Chiropody

Institute of Chiropodists

Society of Chiropodists Ltd

Company Secretaryship

Chartered Institute of Secretaries

Corporation of Secretaries

Dentistry

British Dental Association

Dietetics

British Dietetic Association

Engineering

British Institution of Radio Engineers

Institution of Agricultural Engineers

Institution of Chemical Engineers

Institution of Civil Engineers

Institution of Electrical Engineers

Institution of Engineering Designers

Institution of Gas Engineers

Institution of Heating and Ventilating Engineers

Opportunities After O-level

Institution of Highway Engineers
Institution of Locomotive Engineers
Institution of Marine Engineers
Institution of Mechanical Engineers
Institution of Mining and Metallurgy
Institution of Mining Engineers
Institution of Municipal Engineers
Institution of Production Engineers
Institution of Structural Engineers
Society of Engineers
Women's Engineering Society

Estate Agency

see Auctioneering

Export Trade

Institute of Export

Forestry

Royal Scottish Forestry Society

Health

Royal Society of Health

Horticulture

Royal Horticultural Society

Hospital Administration

Institute of Almoners

Institute of Hospital Administrators

Hotel Management

Hotel and Catering Institute

Housing

Institute of Housing

Society of Housing Managers

Insurance

Chartered Insurance Institute

Corporation of Insurance Brokers

Technical Colleges and Colleges of Commerce

Librarianship

Library Association

Law

Law Society

Linguistics

Institute of Linguists

Management

British Institute of Management

Institute of Office Management

Institute of Personnel Management

Institutional Management Association

Institution of Works Managers

Institute of Works Study

Meat Trade

Institute of Meat

Medical Laboratory Technology

Institute of Medical Laboratory Technology

Metallurgy

Institution of Metallurgists

Motor Industry

Institute of the Motor Industry

Nursing

General Nursing Council

Occupational Therapy

Association of Occupational Therapists

Optical Surgery and Technology

British Optical Association

Packaging

Institute of Packaging

Opportunities After O-level

Patent Agency

Chartered Institute of Patent Agents

Pharmacy •

Pharmaceutical Society

Photography

Institute of British Photographers

Physics

Institute of Physics

Physiotherapy

Chartered Society of Physiotherapists

Plastics Industry

Plastics Institute

Printing

British Federation of Master Printers

Purchasing

Purchasing Officers Association

Quarrying

Institute of Quarrying

Radiography

Society of Radiographers

Rubber Industry

Institution of the Rubber Industry

Science Technology

Institute of Science Technology

Shipbroking

Institute of Chartered Shipbrokers

Social Service

Association of General and Family Caseworkers

Technical Colleges and Colleges of Commerce

Surveying

**Institute of Quantity Surveyors
Royal Institution of Chartered Surveyors**

Statistics

Institute of Statisticians

Textile Industry

**Clothing Institute
Textile Institute**

Town Planning

***See* Architecture**

Veterinary Surgery

Royal College of Veterinary Surgeons

Opportunities After O-level

Chart E. Full-Time Diploma in Technology Courses Available at Technical Colleges

	Architecture	Applied Biochemistry	Applied Chemistry	Applied Physics	Applied Pharmacy
Aberdeen, Robert Gordon's Technical College	*				
Brighton, College of Technology		†	†	*	
Chelmsford, Mid-Essex Technical College			†		
Coventry, Lanchester College of Technology		†			
Dundee, Institute of Art and Technology					
Edinburgh, Heriot-Watt College		*	*	*	
Enfield, College of Technology					
Farnborough, Technical College					
Galashiels, The Scottish Woollen Technical College					
Glamorgan, College of Technology					
Glasgow, Scottish College of Commerce					
Hatfield, College of Technology		†			
Henlow, R.A.F. Technical College (cadets only)					
Huddersfield, College of Technology					
Kingston-on-Thames, College of Technology					
Liverpool, College of Technology		†	†	*	
London, Borough Polytechnic			†		
Northern Polytechnic	*		†		
The Polytechnic	*				
Woolwich Polytechnic					
Middlesbrough, Constatine College of Technology					
Newcastle-on-Tyne, Rutherford College of Technology		†			
North Staffordshire, College of Technology					
Nottingham and District, College of Technology					
Portsmouth, College of Technology		†	†		
Rugby, College of Engineering Technology			†		
Sunderland, Technical College			†	*	
Wolverhampton and Staffordshire, College of Technology					

= Dip. Tech. * = Equivalent to Dip. Tech.

[illegible]

5 Colleges of Art, Music, Dancing, and Drama; Theology; Agriculture; Architecture; and Adult Colleges

Art Schools: The Diploma in Art and Design; Pre-Diploma Course; Vocational Courses; Other Art Colleges and Courses; Other Opportunities for Art Training; Residence; Schools and Colleges of Art offering Courses leading to the Diploma in Art and Design; Books Recommended

Colleges of Music, Drama, and Dancing: Colleges offering Courses leading to Recognized Teaching Diploma; Other Colleges; Books Recommended

Theological Colleges: The Baptist Union; The Church of England; The Church of Scotland; The Congregational Union; The Methodist Church; The Roman Catholic Church; Other Churches

Agricultural Colleges: Two-Year National Diploma Courses

Farm and Horticultural Institutes

Schools of Architecture

Adult Colleges: Long-Term Colleges

Art Schools

At the moment there is a transition period in art-school education, and it will be several years before the pattern is clear. The new three-year course for the Diploma in Art and Design began in September 1963 in certain recognized colleges, but at the same time the old National Design Diploma course is being continued, with 1966 as the date for the last final examination. The National Diploma of Design course lasts two or three years according to whether you have passed the Intermediate Examination in Art and Crafts. As well as these courses, which result in nationally recognized diplomas, there are a great variety of other full-time courses organized in different ways by different Local Education Authorities, usually forms of vocational courses lasting one, two, or three years for the sixteen to eighteen age-group. And in addition to the art colleges run by the Local Education Authorities there are a few colleges (the Slade School, for example) which are connected with universities.

The Diploma in Art and Design

The three-year course qualifications are: (1) You must have reached the age of eighteen on or before 1 October of the year of entry. (2) You must have passed in a minimum of five subjects in G.C.E. at O-level (or equivalent at O-level and A-level); at least three of the five O-levels must be academic subjects, and at least one in a subject which provides evidence of the student's ability to use English. (There is provision for the exceptional student without these academic qualifications.) (3) You must normally have satisfactorily completed a full-time Pre-Diploma art course of at least one academic year. If you have two or more A-levels, you may, in exceptional cases, be considered good enough for direct entry to a Diploma course, subject to the approval of the N.C.D.A.D. (4) You will have to show examples of your work and, in some colleges, to sit an entrance examination as well.

Opportunities After O-level

Registration forms are issued by the **National Council for Diplomas in Art and Design** and are obtainable from the Principal of the Pre-Diploma college. The application registration form should be completed and handed to the Principal of your Pre-Diploma college who will then complete a confidential report and send the form to your first-choice college.

The aim of the new Diploma is that it should be of a higher standard than the N.D.D., making it the equivalent of a first degree at a university. The courses are arranged according to 'areas of study', thus avoiding the tendency of N.D.D. courses to narrow specialization. The National Council agreed on the following broad areas of specialization: Fine Art, Graphic Design, Three-dimensional Design, and Textiles/Fashion. Within these areas the colleges have been able to interpret the detailed composition of courses in their own way and to put their suggestions to the Council for recognition. In September 1963 there were 1,400 places in Diploma courses, whereas in 1962-3 there were 2,900 students taking Pre-Diploma courses in preparation for entry to a Diploma course. Although not all the 2,900 Pre-Diploma students necessarily completed their course satisfactorily, and some were thus not fully qualified, there was keen competition for places in the Diploma courses for September 1963, especially in some of the better-known art schools, where the competition for places was perhaps five to one. Other colleges, however, had some vacant places. There is no reason to suppose that there will be any substantial change in the numbers taking Pre-Diploma courses, although it is likely that the number of Dip.A.D. places will increase in 1965. In 1964 there were thirty-six colleges recognized to provide Dip.A.D.s in eighty areas of study.

Pre-Diploma Course

This is a general art course, and can be run by all L.E.A. art schools providing full-time courses. The course lasts either one or two years, depending on the standard of the student. In some art schools it is possible to do G.C.E. courses at the same time, to bring the number of G.C.E. passes up to the number required for the Dip.A.D. If you cannot take G.C.E. courses at the same time, you would be better advised to complete them before starting the Pre-Diploma course. The Pre-Diploma course is a general basic art course which enables the student to find out where his particular interests and aptitudes lie. In some schools a student may pass from a Pre-Diploma course

to a Vocational Course (*see below*) rather than a Dip A.D. course. Applications are made direct to the art school, and a folder of work is almost certainly asked for. From fifteen-plus to eighteen-plus there is no tuition charge for a Pre-Diploma course. For those over eighteen, some Local Education Authorities do not like giving a grant to students to go to a college away from their own area when there is a Pre-Diploma course available locally, and candidates who wish to study away from home are advised to inquire of their Local Education Authority whether assistance would be given them to do so.

Vocational Courses

The Second Report of the National Advisory Council on Art Education, published in 1962, states that 'the provision of suitable vocational courses is primarily a matter for local initiative and organization by schools and colleges in consultation with industry and commerce'. Provision of these courses thus varies in different parts of the country according to the demand for 'designer/craftsmen and technicians who can collaborate with designers in the execution of their work'. The report uses these terms to 'indicate one who has some measure of creative ability as well as one who, though capable of appreciating creative work, is not normally called upon to initiate such work'. The standard of general education and artistic ability required for these courses is not as high as that demanded for the diploma courses. No G.C.E. qualifications are necessary for many vocational courses although many of the strictly vocational ones do have G.C.E. requirements. Age qualifications vary, but they are normally from sixteen to eighteen. Courses may last for two or three years and may in certain colleges be taken after doing a one-year or two-year Pre-Diploma course. In the words of the report, 'schools should be free to conduct their own examinations or assessments and to award certificates to successful students'. Some of the Surrey art schools, for example, provide courses leading to a Surrey Diploma in Art, and a considerable number of other colleges provide vocational courses in a variety of subjects leading to their local college diplomas.

Other Art Colleges and Courses

COLLEGE FOR THE DISTRIBUTIVE TRADES, 107 Charing Cross Road, London WC2. A two-year course, leading to the College

Opportunities After O-level

Certificate in Display. Candidates must have reached the age of sixteen and must pass an entrance examination.

GLEN BYAM SHAW SCHOOL OF DRAWING AND PAINTING, 70 Campden Street, London W8. This school offers a general training in drawing and painting, and there are opportunities for specializing in these subjects at a later stage; it also has a three-year course for the Byam Shaw Diploma in Fine Art, and shorter non-diploma courses are available. A number of entrance scholarships are offered annually.

ROYAL ACADEMY SCHOOLS OF PAINTING, SCULPTURE, AND ARCHITECTURE, Burlington House, Piccadilly, London W1. 'The purpose of the Schools is to provide, for students of exceptional ability, a further period of study in which to develop their powers.' In the past almost all students of the Schools have passed the N.D.D. in another art school.

ROYAL COLLEGE OF ART, South Kensington, London SW7. This has an outstanding reputation and provides students of exceptional ability with advanced courses in Industrial and Graphic Design and in Fine Arts; entrance is by competitive examination, and candidates must be between eighteen and thirty.

UNIVERSITY OF LONDON: SLADE SCHOOL OF FINE ART, University College, Gower Street, London WC1. A four-year course leading to the Diploma in Fine Art; five O-level G.C.E. passes normally required.

UNIVERSITY OF NEWCASTLE-UPON-TYNE: DEPARTMENT OF FINE ART, Newcastle-upon-Tyne 1. A four-year course leading to B.A. Degree in Fine Art; Matriculation qualifications required, or G.C.E. including English and two subjects (other than Fine Art) at A-level passed on one and the same occasion, and the passing of the entrance examination of the Department of Fine Art, conducted in the University. (For the 35 places in the Degree course beginning in October 1963 there were over 200 applicants.)

UNIVERSITY OF READING: SCHOOL OF FINE ART, Reading, Berkshire. A four-year course leading to the B.A. Degree in Fine Art; G.C.E. required with a pass at O-level in English Language, and five other passes including two at A-level.

Other Opportunities for Art Training

Sanderson's Training Scheme for Designers: Applicants must be between fifteen and twenty-three and must submit specified examples of work. If accepted, there is a six-month probation period and then

four and a half years' study, when the student receives wages in addition to subsistence and residence expenses.

Residence

Residential accommodation is available at Newcastle and Reading, and limited hostel accommodation at the following L.E.A. art schools. Birmingham College of Art and Crafts; Gloucestershire College of Art, Cheltenham; Leicester College of Art; Loughborough College of Art; Oxford College of Technology, Art, and Commerce.

Schools and Colleges of Art offering Courses leading to the Diploma in Art and Design

Buckinghamshire College of Further Education, Queen Alexandra Road, High Wycombe. *Furniture, Silversmithing*

Devonshire College of Art, Gandy Street, Exeter. *Painting, Sculpture*

Durham College of Art, Backhouse Park, Ryhope Road, Sunderland. *Painting, Sculpture*

Gloucestershire. Gloucestershire College of Art, St Margaret's Road, Cheltenham. *Painting, Sculpture*

West of England College of Art, Queen's Road, Bristol 8. *Painting, Sculpture, Ceramics, Furniture*

Hampshire. College of Art, Portsmouth. *Painting, Sculpture*

School of Arts and Crafts, North Walls, Winchester. *Woven and Printed Textiles*

Kent. College of Art, St Peter's Street, Canterbury. *Graphic Design*
College of Art, Faith Street, Maidstone. *Painting, Sculpture, Graphic Design*

Ravensbourne College of Art, Rookery Lane, Bromley. *Painting, Sculpture, Graphic Design, Furniture, Fashion*

Lancashire. College of Art, Hope Street, Liverpool 1. *Painting, Graphic Design, Woven and Printed Textiles, Fashion*

College of Art and Design, All Saints, Manchester 15. *Painting and Sculpture, Graphic Design, Industrial Design (Eng.), Crafts (Wood, Metal, Ceramics), Woven and Printed Textiles, Fashion*

Leicestershire. College of Art, The Newarke, Leicester. *Painting, Sculpture, Graphic Design, Silversmithing, Industrial Design (Eng.), Furniture, Ceramics, Interior Design, Woven and Printed Textiles, Fashion*

Opportunities After O-level

- College of Art, Ashby Road, Loughborough. *Silversmithing, Furniture, Ceramics, Woven and Printed Textiles*
- London. Camberwell School of Arts and Crafts, Peckham Road, SE5. *Painting, Graphic Design, Ceramics, Woven and Printed Textiles*
- Central School of Arts and Crafts, Southampton Row, WC1. *Painting, Graphic Design, Industrial Design (Eng.), Furniture, Ceramics, Woven and Printed Textiles*
- Chelsea School of Art, Manresa Road, SW3. *Painting, Sculpture, Graphic Design*
- College of Printing, Elephant and Castle, SE1. *Graphic Design*
- Goldsmiths' College School of Art, New Cross, SE14. *Painting, Sculpture, Embroidery*
- Hornsey College of Art, Crouch End Hill, N8. *Painting, Sculpture, Graphic Design, Silversmithing, Furniture, Ceramics, Woven and Printed Textiles, Fashion*
- St Martin's School of Art, 109 Charing Cross Road WC2. *Painting, Sculpture, Graphic Design, Fashion*
- Wimbledon School of Art, Merton Hall Road, SW19. *Theatre*
- Nottinghamshire. College of Art and Crafts, Waverley Street, Nottingham. *Painting, Sculpture, Fashion*
- Northumberland. College of Art and Industrial Design, Clayton Road, Jesmond, Newcastle-upon Tyne 2. *Graphic Design, Industrial Design (Eng.), Furniture*
- Staffordshire. College of Art, Queen Street, Burslem, Stoke-on-Trent. *Graphic Design, Ceramics*
- College of Art, St Peter's Close, Itchfield Street, Wolverhampton. *Sculpture, Graphic Design, Ceramics*
- Surrey. Kingston School of Art, Knights Place, Kingston-upon-Thames. *Painting, Sculpture, Graphic Design, Furniture, Interior Design, Fashion*
- Sussex. College of Art and Crafts, Grand Parade, Brighton 7. *Painting, Graphic Design*
- Wales. College of Art, The Friary, Cardiff. *Painting*
- College of Art, Clarence Place, Newport, Monmouthshire. *Painting, Sculpture, Graphic Design*
- Warwickshire. College of Art and Crafts, Margaret Street, Birmingham 3. *Painting, Sculpture, Graphic Design, Industrial Design (Eng.), Silversmithing, Woven and Printed Textiles, Fashion*
- College of Art, Cope Street, Coventry. *Painting*

Colleges of Music, Drama, and Dancing

Wiltshire. Bath Academy of Art, Corsham Court, Bath. *Painting, Sculpture, Graphic Design*

Yorkshire. Kingston-upon-Hull Regional College of Art and Crafts, Anlaby Road, Hull. *Painting*

College of Art, Vernon Street, Leeds 2. *Painting, Sculpture, Graphic Design, Silversmithing, Industrial Design (Eng.), Furniture*

College of Art, Brincliffe, Psalter Lane, Sheffield 11. *Painting, Sculpture, Silversmithing*

Books Recommended

Art and Design, Pamphlet 103 in *Choice of Careers* series, Central Youth Employment Executive. Published 1960; out of date as regards information on courses, but very sensibly written

Reports, National Advisory Council for Art Education. 1960 Report gives the aims of the new diploma system; 1962 Report gives *Vocational Courses in Colleges and Schools of Art*

L. E. A. lists of local art schools, or complete list from the Department of Education and Science.

Higher Education

For prices etc. see BIBLIOGRAPHY, p. 299.

Most art schools publish their own prospectus, which should be consulted since the content of Dip A D courses varies from college to college.

Colleges of Music, Drama, and Dancing

If you want to specialize in music, drama, or dancing within the framework of a general teacher-training course, then you should read Chapter 2, because there you will find a number of colleges which do offer relatively specialized courses in these subjects. Some school-leavers, however, may want to specialize not necessarily in order to become teachers but to become performers: for them there are various colleges which offer training in music, drama, or dancing alone. In many cases graduate or non-graduate courses designed to equip students as good musicians or performers may be followed by a one-year course in teacher-training so that they are then qualified to teach the art in which they have specialized.

The requirements for entry to these colleges vary a good deal, depending on the type of course. If you are embarking on a course

Opportunities After O-level

leading to a fully recognized teaching qualification, you will need at least five O-level passes, and you will also have to provide evidence of talent and proficiency in the subject, usually by means of an audition. Entry for intending performers and teachers is often highly competitive, and at most colleges it is necessary to apply in the early autumn of the year before you want to start the course. R.A.D.A. takes entrants in January, May, and October.

You may be able to get a grant to attend a college of music, drama, or dancing from your Local Education Authority. In addition, most colleges offer scholarships to cover varying proportions of the fees and expenses (the fees at a London drama school may be from forty to ninety guineas a term) but competition for these is very keen.

It is important to realize that the possession of a diploma recognized by the Department of Education and Science will give you full teacher status, while other diplomas will not. All courses leading to qualified teacher status in music will demand two years at a recognized college of music (or a training which can be deemed the equivalent) followed by a third year at a recognized College of Education.

You will not be given qualified teacher status after 1965 unless you also have the minimum education qualifications required for entrance to a recognized College of Education (see Chapter 2).

Colleges offering Courses leading to Recognized Teaching Diploma

Devonshire Dartington College and Art Centre, Totnes

Kent. Rose Bruford College of Speech and Drama, Lamorbey Park, Sidcup

Lancashire Northern School of Music, 91 Oxford Road, Manchester 1

Royal Manchester College of Music, Devas Street, Oxford Road, Manchester 15

London Central School of Speech Training and Drama, Embassy Theatre, Swiss Cottage, NW3

Dalcroze Society Training Centre and London School of Eurhythmics, c/o London College of Music, 47 Great Marlborough Street, W1

Guildhall School of Music and Drama, John Carpenter Street, EC4

London College of Music, 47 Great Marlborough Street, W1

New College of Speech and Drama, Ivy House, North End Road, NW11

Theological Colleges

Royal Academy of Music, Marylebone Road, NW1
Royal College of Music, Prince Consort Road, SW7
Trinity College of Music, Mandeville Place, W1
Wales. City College of Music and Drama, The Castle, Cardiff
Warwickshire. Birmingham and Midland Institute School of Music,
1-18 Paradise Street, Birmingham 1

Other Colleges

Gloucestershire. Bristol Old Vic Theatre School, 2 Downside Road,
Bristol 8
Lancashire. Matthey School of Music, 25 Islington, Liverpool 3
London. London Academy of Music and Dramatic Art, Tower
House, Cromwell Road, SW5
Royal Academy of Dramatic Art, 62-4 Gower Street, WC1
Royal Academy of Dancing Teachers' Training Course, 6 Addison
Road, W14
Royal Ballet School, 153-5 Talgarth Road, W14
Tonic Sol-Fa College of Music, Curwen Memorial Buildings,
9 Queensborough Terrace, W2
Webber-Douglas School of Singing and Dramatic Art, 34 Clare-
ville Street, SW7
Scotland. Royal Scottish Academy of Music, St George's Place,
Glasgow C2
Surrey. Laban Art of Movement Centre, Woburn Hill, Addlestone.
Royal School of Church Music, Addington Place, Croydon

Books Recommended

A Career in Music

Choice of Careers booklets: 98 *Dramatic Art*, 99 *Dancing*, 101
Music

The Making of a Dancer

For prices, etc. see BIBLIOGRAPHY, p. 299.

Theological Colleges

The admissions procedure of the many theological colleges varies slightly with the denomination of the college. Some of them are closely linked with the universities (see Chapter 1). Grants may be obtained from your Local Education Authority (see Chapter 7), and the church may give financial assistance.

Opportunities After O-level

The Baptist Union

There are eight Baptist Theological Colleges offering between four-year and six-year courses, depending on the student's progress. You must be under forty and have achieved a satisfactory standard of education. Women may also apply. At the end of the degree or diploma course you will normally be ordained, but will spend three years as a probationer minister. Further information may be obtained from the **Baptist Union of Great Britain and Northern Ireland**.

The Church of England

The Bishops require all candidates for ordination, except some of those over forty years of age, to attend a residential selection conference arranged by the **Central Advisory Council for the Ministry**. Selection conferences are held in most weeks of the year in various parts of the country. The minimum age for attendance is eighteen. The first step for candidates is always to consult their parish priest, chaplain, or headmaster, who will put them in touch with C.A.C.T.M. or their diocesan director of ordinands. All married candidates and men engaged to be married must be sponsored by a Diocesan Bishop before they can be invited to a selection conference.

All candidates under the age of twenty-five are required to obtain a university degree, whenever possible, and then to do a two-year course at one of the twenty-eight Anglican Theological Colleges. There are four-year courses for accepted non-graduate candidates, and shorter courses for men over the age of twenty five. All those under the age of forty have to pass the General Ordination Examination or an equivalent qualification.

Details of entry qualifications and of available courses for candidates of all ages may be obtained from C.A.C.T.M. or any diocesan director of ordinands.

Women may be trained as layworkers or deaconesses and serve the Church on the staffs of parishes, or the chaplaincy staffs of universities, hospitals, industrial missions, and the Forces, and in the field of education. Candidates normally apply through their diocesan Board of Women's Work to come to a selection conference run by the **Council for Women's Ministry in the Church**. The training lasts from two to three years and is taken at one of the recognized Training Houses. Full particulars may be obtained from the

C.W.M.C. or the secretary of a diocesan Board of Women's Work.

The Church of Scotland

You require a degree in Arts, Medicine, Science, Law, or Music from a Scottish university or any other university recognized by the Church, and must also be recommended for the Church by the Presbytery in which you live. On completing the course you will become a Probationer for one year. Further details may be obtained from the **Committee on Education for the Ministry, Church of Scotland Offices.**

The Congregational Union

After recommendation by a Church Meeting, your Minister will put you in touch with the Moderator who, in turn, will arrange an interview for you with a committee of your County Union and then with the Ministerial Committee of the Province. You will need a recommendation from the County and the Province, as well as a medical certificate before you will be considered for admission to a college. You will have to take an entrance examination, usually in June, and if successful, you will be interviewed by the college Governors. The college year begins in October. Further information is obtainable from the **Congregational Union of England and Wales.**

The Methodist Church

The six residential colleges offer a four-year course and are affiliated to universities. It is possible for students to take a degree in Theology or Divinity. Candidates born after 1 January 1942 must have four G.C.E. O-levels, including English Language. You must also be a local preacher, with the consent of the Superintendent Minister of your circuit, for a year; on successfully completing this year, and if selected, you will be told which college you will attend by the Methodist Conference, held in July. Further information is obtainable from the **Methodist Ministerial Training Department.**

The Roman Catholic Church

Candidates require a good education and a working knowledge of Latin. For admission to a Roman Catholic seminary for the diocesan

Opportunities After O-level

clergy, you must be recommended by your parish priest (or chaplain of your services unit) and be accepted by the Bishop. Training in a seminary takes from four to seven years, and a further three years at a university course is required if you want to teach. Further information is obtainable from The Secretary to His Grace the Archbishop of Westminster, Archbishop's House, London SW1.

Other Churches

The Presbyterian Church of England: The Secretary of the Board of Studies, Westminster College, Cambridge

The United Free Church of Scotland: Adviser of Studies, United Free Church of Scotland Theological College, 29 Hope Terrace, Edinburgh 9

The Episcopal Church in Scotland: The Rev. the Principal, The Theological College, Rosebery Crescent, Edinburgh 12

The Jewish Religion: Education Officer, London Board of Jewish Religious Education, Woburn House, Upper Woburn Place, London WC1

Society of Friends: Friends House, Euston Road, London NW1

The Church of Ireland: The Warden, The Divinity Hostel of the Church of Ireland, Braemor Park, Rathgar, Dublin 6

The Church in Wales: The Secretary to the Governing Body, 39 Cathedral Road, Cardiff

Further information concerning all Churches can be obtained from the **British Council of Churches**.

Agricultural Colleges

Two-Year National Diploma Courses

There are five Agricultural Colleges in England and three in Scotland offering two-year courses leading to a National Diploma in Agriculture:

Bedfordshire. Shuttleworth College,* Biggleswade

Devonshire. Seale-Hayn Agricultural College,* Newton Abbot

Gloucestershire. Royal Agricultural College,† Cirencester

Scotland. North of Scotland College of Agriculture, 14 Union Street, Aberdeen

* Also a one-year course in Agriculture.

† Also a one-year course in Farm Management.

Farm and Horticultural Institutes

**Edinburgh and East of Scotland College of Agriculture, West
Mains Road, Edinburgh 9**

**West of Scotland Agricultural College, 6 Blythswood Square,
Glasgow C2**

Shropshire. Harper Adams Agricultural College, Newport

Warwickshire. Studley College, Warwick*

REQUIREMENTS. The normal age of entry in England is eighteen, in Scotland seventeen; five O-level passes in G.C.E. (or equivalent) are required for admission, including passes in English, Mathematics, Chemistry, and Biology. Candidates must have had one year's practical experience before entry.

HOW TO APPLY. Applications should be made to the Principal of the college concerned.

GRANTS. Grants are usually available from your L.E.A. (see Chapter 7).

NATURE OF THE COURSE. The course includes instruction and practical work in Accountancy, Animal Health, Animal Husbandry, Crop Husbandry, Farm Management, Farm Mechanization, Economics, Engineering. Science subjects include Biology, Chemistry, and Zoology, as applicable in agriculture.

EXAMINATIONS. It is possible to sit for a Royal Horticultural Institute's Diploma from an Agricultural College as well as for the National Diploma in Agriculture, and the National Diploma in Dairying.

Northern Ireland

Agricultural Colleges in Northern Ireland are:

COUNTY ANTRIM. Greenmount Agricultural College, Muckamore. A ten-month training course for boys over seventeen.

COUNTY TYRONE. Loughry Agricultural College, New Cookstown. Certificate and Diploma courses for girls over seventeen.

Strabane Agricultural School, Strabane. Fourteen-week courses for boys and girls of school leaving age.

Farm and Horticultural Institutes

ENGLAND AND WALES. There are thirty-six Farm and Horticultural Institutes and two private colleges, offering a one-year course which is more practical and less academic than the courses offered at

* Women only.

Opportunities After O-level

the agricultural colleges. The course supplies sufficient scientific and technical instruction to enable students to understand modern farming methods and techniques. A few of these Institutes do supply a two-year diploma course, a General Agriculture course, and specialist courses in Horticulture, Poultry Husbandry, and Dairying; at four Institutes Market Gardening specialist courses are available.

SCOTLAND. There are eight Farm Schools.

REQUIREMENTS The minimum age of entry is seventeen, three O-level passes in G C E. (or equivalent), preferably in English, Mathematics, and a science subject, and a year's practical work on a farm are required before you can be accepted for the course

HOW TO APPLY Application should be made to the Principal of the Institute concerned

GRANTS Grants are usually available from your L E A. (*see* Chapter 7).

Books Recommended

Names and addresses of all the Institutes and further details are available in pamphlet 185, *Full-Time Agricultural Education in England and Wales*, which can be obtained free from the **Department of Education and Science**, FEIC Details concerning agricultural education in Scotland can be obtained from the **Royal Highland and Agricultural Society of Scotland**. Local Youth Employment Officers can also provide further information.

See also AGRICULTURE p. 252, ENGINEERING, AGRICULTURAL p. 264.

Schools of Architecture

There are many recognized schools of architecture offering a five-year full-time course followed by two years' practical experience. Some of these are university schools (*see* Chapter 1), others are special departments in colleges of art or Technical Colleges (*see* Chapter 4) A complete list of these schools and further information is available from the **Royal Institute of British Architects**.

Candidates applying for admission to a school of architecture should hold at least the minimum educational qualifications, which are five subjects in the G C E. (or similar qualification) including English, and Mathematics or Science, at least two of the five must be

at A-level. Possession of these minimum qualifications does not guarantee you a place in a school of architecture, since some schools require higher qualifications. It is not easy to obtain a place at a school of architecture, particularly a university school: the proportion of applications to places available is about nine to one. Specific entrance requirements should be obtained from the R.I.B.A. or the appropriate school of architecture. None of the schools conduct entrance examinations (except the Architectural Association School of Architecture). Before qualifying as an architect you must also complete two years of practical training, which will normally consist of a year in the middle of the course and a year at the end. Local Education Authorities provide financial assistance for eligible students taking a full-time course (see Chapter 7), and the R.I.B.A. offers a small number of post-graduate scholarships. See also ARCHITECTURE p 254.

Adult Colleges

There are over thirty Adult Colleges in Britain; they provide for adults who wish to pursue a full-time, part-time, or short course of study, mainly in Arts or Social Science subjects, and nine are 'long-term' residential colleges, of which some provide a two-year course leading to a diploma and others offer a one-year course of liberal studies without a diploma. The 'short-term' colleges offer residential courses lasting anything from one day to three months. Addresses of these colleges and details of their courses may be obtained from the **National Institute of Adult Education**. The 'short-term' colleges generally provide a wider range of subjects than the 'long-term' ones and accept students of all ages from eighteen upwards.

At the 'long-term' colleges students are normally aged between twenty and forty. There are no formal educational requirements, and principals look for candidates who show evidence of a strong desire for further education. You will have an advantage if you have attended an evening class or taken a correspondence course. Applications should be sent to the Principal of the College, and it is wise to apply about ten months before you hope to begin the course. The college year is from October to July, and admission is usually based on an essay and/or interview. Board, residence, and tuition fees vary from £250 and above, but an extra sum is required for books and travelling and other expenses. Scholarships and awards are offered

Opportunities After O-level

by some colleges, trade unions, and other bodies, and grants can be obtained from your Local Education Authority (*see* Chapter 7).

The course consists of lectures, discussions, and tutorials. Internal examinations are held by some colleges, and it is also possible to take various external diplomas. You may then be able to go on to take a university or College of Education course.

Long-Term Colleges

Gloucestershire Hawkwood College, Stroud. One-year course for men and women, based on the work of Rudolf Steiner.

Leicestershire. The Cooperative College, Stanford Hall, Loughborough. One-year and two-year courses to equip men and women for various forms of general community service and for service in cooperative movements at home and abroad, it is possible to take the University of Nottingham Diploma in Political, Economic, and Social Studies

Oxfordshire. The Catholic Workers' College, Plater Hall, Boar's Hill, Oxford. A two-year course primarily for students wishing to study the relevance of Catholic teaching to social studies, 40 students (men and women)

Ruskin College, Oxford Has close relations with the trade-union movement, which provides a number of scholarships for its two-year course (men and women). Students may take an Oxford University Diploma

Scotland Newbattle Abbey, Dalkeith, Midlothian. One-year course (men and women)

Surrey. Hillcroft College, South Bank, Surbiton. One-year course (women)

Wales. Coleg Harlech, Harlech, Merioneth. One-year and two-year courses, 134 students (men and women)

Warwickshire. Fircroft College, Selly Oak, Birmingham. One-year course, mainly for working men; 38 students

Woodbrooke College, Selly Oak, Birmingham Provides a course for members of the Society of Friends and others wishing to prepare for various forms of Christian service.

6 Correspondence Courses*

Colleges and Courses

Fees

Grants

Guarantees

The Timetable

The College of the Sea

The National Extension College

* This chapter is based on an investigation undertaken by the **Consumers Association** the results of which were published in the October 1963 number of their magazine *Which ?* You should refer to this for more detailed information about correspondence courses in G.C.E. O-level Pure Mathematics and English Language

There are a number of reasons why you may wish to study at home by means of a correspondence course. Perhaps your only time free for studying is at night, or during hours when courses are not available at technical colleges, adult education centres, etc. Perhaps you are not free to attend classes away from home (this applies particularly to married women). Perhaps other forms of part-time education in your particular subject are not available in the area. Or maybe you are anxious to study in your spare time for one of the various professional qualifications such as accountancy, estate management, or law, where postal tuition is one of the recognized ways of preparing for the examinations. Or, having missed the beginning of regular part-time classes, you may not want to wait for the beginning of the next academic year but prefer to start immediately by correspondence.

It is estimated that as many as half a million students are at present taking courses from correspondence colleges in the United Kingdom. These courses may lead to anything from a spurious diploma to O-level G.C.E. and to a London external degree or the examinations set by the various professional bodies. An external degree in music can also be taken at Durham University, but London has over forty different degrees which can be taken externally, ranging from a B.Sc. (Agriculture) to a B.A. (Psychology) and a Law degree. Some of the colleges also offer diplomas of their own in various subjects, although employers may attach little value to these. Most correspondence students are working people studying in their spare time in order to improve their position or move to a better job; many of them are studying in the English-speaking countries of Africa and Asia. Some people follow these courses for general interest; yet others do so in order to supplement full-time courses at a university or Technical College with an additional specialization not offered in their courses. These students are catered for by some fifty correspondence colleges. However, well over half the total number of

Opportunities After O-level

students are enrolled with the six largest colleges, which are the British Institute of Engineering Technology; the International Correspondence Schools, the Metropolitan College; the Rapid Results College, the University Correspondence College; and Wolsey Hall.

When considering a correspondence course, you must bear in mind a number of disadvantages of postal tuition in general, disadvantages which must be partly responsible for the large numbers of correspondence students who drop out without completing their courses. One drawback is that these courses demand a great deal of solitary work, and consequently a lot more determination than courses in which you have the companionship of other people and perhaps the stimulus of competition. Many people are not temperamentally suited to working alone, with very little supervision, and without any personal contact with the tutor, although these same people may be capable of good work under less lonely conditions. If you think you are a person of this type, then another method of study would certainly be better for you.

Another source of discouragement is that it is often difficult for the college to assign a student to a course of exactly the right level for his educational standard, and many colleges make little or no effort to test the student's knowledge and capacity before advising him on what course to take. (Of the colleges included in the C.A. investigation, only Bennett College sent proper attainment tests without being asked.) This means that some people find themselves doing courses for which they are not really prepared. Always be sure that the college has enough information about you not to put you in this position, you should ask to be given preliminary attainment tests where the course requires an initial level of ability (usually, beyond G.C.E. O-level).

Others who fall by the wayside are those originally attracted by the lavish promises to be seen in advertisements for some correspondence courses, who are then dismayed to find that studying by correspondence involves if anything more and not less work than attending regular classes. Finally, of course, there are those who abandon their course, exasperated by the bad teaching methods, poor presentation of material, and lack of constructive guidance which are all too often to be met with in this field. A common criticism of correspondence courses is that they are often no more than cramming systems, in the worst cases sometimes involving the learning of a mass of outdated

material, with too little effort made to develop an interest in the subject for its own sake. You must never forget that almost all these colleges (with the important exceptions of the N.A.L.G.O. College, the National Extension College, the College of the Sea, U.C.C., and U.L.C.D.B.) are commercial undertakings operating in a large and expanding market.

Just as postal tuition does not suit every type of student, in the same way it seems to be less suited to certain subjects than to others. If you want to take a course of a vocational type, for example, such as those for the various professional examinations, and if this is related to the day-to-day work of your job, then you might very well find the course satisfactory. The same probably goes for the natural sciences and mathematics, though this will of course vary greatly with the standard of the teaching. But in some other subjects (e.g. English, History, Journalism, Creative Writing) there is a much greater need for a teacher who can assess your individual needs and adapt his teaching to your particular talents and difficulties. Obviously this is going to be much more difficult by post, and here the usefulness of correspondence courses compared to regular classes is somewhat limited. In the case of engineering and many science courses it is important to remember that the necessary practical work cannot be dealt with satisfactorily by purely postal tuition, and that this part of the tuition must normally be obtained at a Technical College. There may still be some value in a correspondence course, however, for those wishing to repeat an examination which they have previously prepared for in a Technical College, or for revision purposes. Of course you may be able to attend the practical but not the theoretical classes at your local Technical College.

Correspondence courses are not as yet inspected by the Department of Education and Science, and little impartial information is available about them. Thus you cannot, at present, have the security of knowing that a particular college has been inspected and has satisfied certain minimum standards. Some people feel that there should be compulsory registration and inspection of correspondence schools. In several other countries this has done much to improve the quality and enhance the status of this method of education. In the Soviet Union, where postal tuition is most highly developed, nearly half of those graduating each year are correspondence students, and more than half the students in higher education (that is, about one and a half million) are part-time students, many of

Opportunities After O-level

them studying by correspondence. To take another example, in Canada the Federal and Provincial Governments provide correspondence courses, for which in one recent year 90,000 students enrolled.

However, if you bear in mind the limitations on information about British correspondence colleges, you may nevertheless find some guidance in the following paragraphs.

Colleges and Courses

The following is a list of twelve of the larger British correspondence colleges and some of the courses they offer. For addresses, see ADDRESS LIST p. 301.

BRITISH INSTITUTE OF ENGINEERING TECHNOLOGY. Agriculture and Building. Auctioneering and Estate Agency. Civil Service. Cost Accountancy. Draughtsmanship. Engineering (all branches). G.C.E. Management. Radio and Electronics. Surveying. Telecommunications. University Degrees. This college is controlled by Cleaver-Hulme Ltd which also controls EMI INSTITUTES, NATIONAL INSTITUTE OF ENGINEERING, CHAMBERS COLLEGE, MAYFLOWER COLLEGE, SCHOOL OF CAREERS. In some cases similar teaching material is offered by two or more colleges, but this does not mean that the fees charged are necessarily the same.

CAPITOL RADIO-ENGINEERING INSTITUTE. City and Guilds of London Institute, Telecommunication Technicians' Course. Electronic-Engineering Technology. Nuclear-Engineering Technology.

Specialized Sections for Engineers: Aeronautical and Navigational Electronic-Engineering Technology. Automation and Industrial Electronics. Communications. Servomechanisms and Computer-Engineering Technology. Space Electronics. Television.

The Institute is a member of the City and Guilds of London Institute, and is a branch of the American organization, which is fully accredited and has a very good reputation.

INTERNATIONAL CORRESPONDENCE SCHOOLS. Engineering. G.C.E. (O- and A-levels). Professional Qualifications. NOT University Degrees.

METROPOLITAN COLLEGE. Accountancy. Advertising. Banking. Book-keeping. Building-Society Work. Catering. Civil Service.

Correspondence Courses

Export. G.C.E. Insurance. Law. Local Government. Salesmanship and Sales Management. Secretaryship. University Degrees.

N.A.L.G.O. CORRESPONDENCE INSTITUTE. Non-profit-making. Accountancy. G.C.E. Hospital Administration. Housing Management. Local Government. Medical Records. Municipal Engineering. Public Administration. Public Health Engineering. Secretaryship. Weights and Measures Inspection.

The N.A.L.G.O. professional courses have a very high reputation.

RAPID RESULTS COLLEGE. Accountancy. Banking. Book-keeping. Business. Civil Service. Costing. Finance. G.C.E. Insurance. Law. Secretaryship. University Degrees.

UNIVERSITY CORRESPONDENCE COLLEGE. An educational trust. Civil Service. G.C.E. Local Government. Mathematics. Religious Knowledge. Secretaryship. Statistics. University Degrees in Arts, Education, Law, Music, Science, Theology. On 1 January 1965 the U.C.C. became a constituent part of the National Extension College, and since then its courses have been revised and rewritten.

UNIVERSITY OF LONDON COMMERCIAL DEGREE BUREAU. External students of B.Sc. (Hcon.) Part 1 and some special subjects of Part 2.

The courses have a very good reputation.

WOLSEY HALL. Banking. G.C.E. Hospital Administration. Law. Local Government. Secretaryship. Statistics. Teaching. Theology. University Degrees. Welfare.

The Consumer Association (*see* *ibid.* 2 October 1963) investigated the G.C.E. O-level English and Mathematics courses offered by these colleges. Metropolitan College, N.A.L.G.O. Correspondence Institute, University Correspondence College, and Wolsey Hall were considered satisfactory in both subjects. International Correspondence Schools and Rapid Results College provided courses of an adequate standard in Mathematics.

Fees

It is not possible here to give more than an indication of the general level of the cost of correspondence courses. The following examples show typical variations in the fees charged, and those of most colleges will fall between these limits.

Opportunities After O-level

Course		Lower End			Upper End		
		£	s.	d.	£	s.	d.
Part I B.Sc (Econ) London	Usually two- or three- year course	15	0	0	25	0	0
Part I Bar Examination		18	0	0	26	0	0
G.C.E. O-level	one subject. Usually one-year or two-year course	3	0	0	6	0	0
G.C.E. A-level		5	5	0	6	10	0

In G.C.E. courses you usually pay less for second and subsequent subjects

You should not assume that there is any connexion between cost and the merits of the course. Very often price differences between colleges are due to a different arrangement for textbooks. Some lend the books for no extra charge, others expect you to buy your own, and some claim that no textbooks are needed apart from the lesson sheets. Thus the University of London Commerce Degree Bureau is one of the cheapest in Economics, which is the only subject that it offers. Wolsey Hall, the Metropolitan College, and the University Correspondence College are all close to the lower limit, though they were judged by *It hich?* to be among the best of the correspondence colleges in the subjects investigated. Of these, Wolsey Hall, the Metropolitan College, and the University Correspondence College usually offer free loans of books. A number of the more expensive colleges, on the other hand, provide books (or the equivalent 'comprehensive' lesson sheets) either for the duration of the course or for you to keep.

Some colleges make 'special offers' of reduced fees to applicants who after a few weeks do not follow up their initial inquiries. If you are in no hurry and can afford to wait a little, you may feel that this offers one way of testing the spirit in which a college approaches its work.

Grants

The Local Education Authorities have been authorized 'to give financial assistance in suitable and approved cases in respect of postal courses in subjects of Further Education'. This means that as long as you are a serious student, and if distance or some other obstacle

prevents your attending ordinary part-time classes where these exist, you can apply to your L.E.A. for help with the cost of a correspondence course. They will also sometimes help with travel expenses to practical classes and so on connected with the course (*see* Chapter 7).

Guarantees

Some correspondence colleges advertise with such eye-catching phrases as 'No pass, no fees' or 'Quick results or your money back'; students are sometimes surprised to find that after a failure there is no automatic refund, or that if they drop out of a course which they are paying by instalments, they perhaps have to continue the payments. You should read the guarantee or equivalent document, which the college will send you, with care: whereas the advertising may often be misleading, the actual guarantees, or terms of enrolment, are usually quite clear.

Colleges often promise further free tuition in the event of your failing at the first examination, but there are several possible variations on this. Some colleges put a limit on the amount of free tuition you can receive (until the next examination, three years, etc.) and others make this conditional on your having 'completed the course' or 'worked conscientiously' – which presumably the college can interpret almost as it wishes. There are a few colleges which claim to refund all or a part of your fees if after a certain period of continued free tuition you have not passed the examination. Here again the refund is usually dependent on your studying satisfactorily, submitting your work by the right dates, completing all papers set, etc.

However, since your aim will probably be to pass the examination as soon as possible, the refund may be of less importance to you than the possibility of continued tuition, and you can assure yourself on this point by a careful reading of the terms of enrolment. Both refund and continued tuition are also obviously less important than the choice of a good college.

The Timetable

The practice of correspondence colleges varies in this respect. The course begins on enrolment and finishes in most cases when you sit for your examination. The date of the examination is normally decided at the start, but some colleges leave this entirely to you. Some

Opportunities After O-level

colleges (e.g. Rapid Results, Metropolitan) will usually make out a timetable for you on the basis of the time you have available and the material to be covered. It is a good idea to ask for such a timetable, and to ask the college to let you know if you fall behind your schedule.

Remember that in the case of colleges which automatically issue timetables, failure to keep up will often mean the loss of your 'guarantee' rights. These timetables can usually be altered in the light of changed conditions, for a fee of about ten shillings. A similar fee is sometimes charged by the college if you wish to change the date of your examination. Entrance for the examination, and examination fees are your own responsibility, but the college will advise you on these points.

The College of the Sea

The College of the Sea is in a special category. A department of the non-profit-making Seafarers' Education Service, founded in 1919 by Albert Mansbridge, its facilities are available only to British merchant seamen, fishermen, and lightkeepers. Largely through honorary tutors, the College offers tuition by correspondence in some thirty general subjects, including most G.C.E. subjects. Although not concerned with purely vocational training, the College offers expert advice to seafarers on anything to do with studies of all kinds, and lends all works of non-fiction to them on personal loan. Fees are nominal.

The National Extension College

This is a new venture in the field of home study. It was started on 1 January 1964, and is run on a non-profit-making basis under the sponsorship of the Advisory Centre for Education. The College has no resident teaching staff, and its tutors are members of the universities of Bristol, Cambridge, Harvard, Hull, and Keele and the Cambridgeshire College of Arts and Technology.

It is the aim of the National Extension College to break down the isolation of the correspondence student by using a variety of methods to bring him into contact with his tutor. It is felt that this might later be the pattern for a much larger and government-sponsored effort in this field. Among the methods of communication with which the College is experimenting are tape-recording, telephone, radio,

Correspondence Courses

television, and mobile language-teaching equipment. Residential week-end courses, using university buildings out of term, are an integral part of the instruction, and by this means the student can be brought into regular contact with the staff.

The College offers residential weeks for students studying for London external degrees in Economics, Physics, Mathematics, English, etc. and complete preliminary courses in G C E. O-level Mathematics and O-level English (a combined course in Language and Literature).

Vocational courses are available in Business Mathematics, Electronic Engineering, and Languages. For women graduates (or qualified teachers) wishing to return to or move into teaching, there is a correspondence course which links up with practice in local schools. For women who wish to train to look after young children in play-groups, playgrounds, dental surgeries, etc. there is a three-stage pre-school play-group course. There are many similar courses of the more unusual kind, combining other techniques with correspondence. The N I C has incorporated the University Correspondence College and so also offers seventy-three conventional courses in G C E and London external degree subjects. For further details you should write to **The National Extension College**.

7 How to Pay

Universities: Local Authority Awards; Scholarships; Books Recommended

Colleges of Education: Dependent Students; Independent Students

Other Full-Time Grants: Books Recommended

Industrial Apprenticeships and Scholarships: Table XII. Scholarship and Apprenticeship 'Sandwich' Courses; Books Recommended

Courses not Automatically Qualifying for a Grant

Charities and Trusts

Other Grants: Department of Education and Science;
Extra-Mural Boards; Trades Union Congress; Workers'
Educational Association

Universities

Local Authority Awards

Anyone with two A-levels and a university place will automatically qualify for assistance from his Local Education Authority. Although allowances are now standardized, however, and the means test has been greatly modified, students whose parents' income is above a certain amount are entitled to only £50 a year, and it does sometimes happen that parents cannot make up the difference.

What does a university education really cost? Full grants, which are supposed to be a realistic (and perhaps slightly generous) estimate of what the undergraduate will need per year for maintenance (i.e. food and lodging), books, travel to and from university, clothes, spending money, and a small vacation allowance are as follows:

1963-4	<i>College or Hall</i>	<i>Lodging</i>	<i>At home</i>
Oxford and Cambridge	£345	£345	£240
London	£335	£330	£240
Other universities	£320	£300	£240

These amounts include £30 vacation allowance, £30 for books, instruments, and materials, and £10 for travelling expenses. In most cases local authorities pay tuition fees and other miscellaneous university or college expenses. If the student has to finance himself, he should expect each year at university to cost him the amount of the L.E.A. maintenance grant and about £250 for fees and other expenditure.

When a grant has been obtained, fees for the course, examination fees, and other approved college charges are paid direct to the appropriate department. The maintenance grant is paid to the student through the university or college finance department.

Opportunities After O-level

Most students do some paid work during the vacations, to make enough for holidays and to help keep themselves during the time away from university. But since part of the university vacations are intended to be spent on private study, few undergraduates can take more than three months a year off to earn some money. Students should also note that scholarships, awards, and term-time earnings in excess of £100 are deducted in full from the grant.

Additional payments may be made by Local Education Authorities when a student has to spend more than £10 a year on necessary travelling; for attendance at vacation courses (including courses abroad for modern language students); for residential courses away from university during term time; and for medical or dental instruments, where these cannot be hired. Additional vacation grants are also sometimes made to students who support themselves or who cannot expect support from their parents. All these supplementary awards are entirely at the discretion of the Local Education Authorities.

In calculating parental contributions, allowances may be made against gross income for mortgage, superannuation contribution, dependants, and domestic help. After these allowances have been made contributions are as follows:

<i>Balance of Income</i>	<i>Parental Contribution</i>
Up to £700	Nil
700	8
1,000	32
1,500	74
2,000	124
2,500	174
3,000	224
3,500	274
4,000	324
4,500	374
5,000	424

If a parent refuses to disclose his income, a £50 grant is automatically made to the student: this is now the minimum, and is given

however large an income the family has. Scholarships and earnings up to the value of £100 do not affect a grant.

There are three groups of students whose grant is not influenced by parental income: women over twenty-one who are married before gaining an award; mature students who are over twenty-five on 31 August before they start their course (these students are eligible for up to £75 extra grant if they have worked for at least three years and earned a yearly salary at least twenty-five per cent higher than the grant for which they are eligible); students who have supported themselves for three years before beginning the course.

Students in any of these categories might also qualify for additional grants for their dependants.

Scholarships

Most universities and university colleges offer entrance scholarships, and great prestige is still attached to gaining them. They were founded to provide poor but able students with a chance of a university education at a time when little or no help was provided by the state. Now their monetary value is small – usually about £50 a year, and is negligible compared with the cost of maintenance and tuition at university.

Many people feel that since L F A s are now responsible for financing students at institutes of higher education, entrance awards ought to be discontinued. If a student's grant is not sufficient, then such a small amount as £50 given with an award is not going to make much difference. Students of scholarship standard whose parents for some reason have to make a contribution which they cannot afford would do better to consider trying for an industrial scholarship, if their subject comes within the range of interest of relevant firms (see the section on *Industrial Apprenticeships and Scholarships*, p. 238).

Some universities are reviewing their entrance awards, and where possible and desirable are diverting the funds provided into undergraduate and research awards. The new universities are not offering entrance scholarships at present, and if this trend continues they will probably use endowments to set up prizes and post-graduate awards.

There are two main kinds of award – open and closed. The former are open to any student who wishes to compete, while the latter are subject to restrictions of school, parents' profession, area of residence, etc. Some closed awards have quite colourful clauses – one stipulates

Opportunities After O-level

that a scholar must have no contact with tobacco, another that the holder must tend a certain grave. In most cases a candidate for a closed award would have to reach the standard required for any award. In other words, closed awards are not usually easier to obtain than competitive scholarships. This may not always apply, but candidates will have to read the regulations governing the method of choosing award-holders before they can assume that it does not. Closed-award holders can be chosen in the following ways: through the scholarship examination, in which they have to reach open award standard; through the scholarship examination, in which they have to show a reasonable academic standard; by nomination of headmasters, firms, etc. (here a candidate would have to satisfy entry requirements and be the best eligible candidate available, or, in some cases, the one who has the most need of the help offered); by academic record – some universities award closed (and occasionally open) scholarships on candidates' past examination results (usually A-level and S-level), often hold an interview for likely candidates, and (if their choice is in doubt) may also set an examination.

Scholarships, exhibitions, and bursaries do not offer easier or extra ways of getting into a university. Candidates must satisfy the entrance requirements of the university, and also any particular faculty requirements (except at Oxford and Cambridge, where a scholarship entitles the holder to a place in a college; the scholar would, however, require two A-levels to qualify for a L.E.A. grant). This means that applicants must obtain at least two A-levels, and, to have a chance of a scholarship, must usually be of a very high standard academically.

Awards nowadays may be said to be possible only for those who would have no difficulty in getting into university, and to be important only to those who need an extra £50 a year.

Books Recommended

Details of scholarships and awards can be obtained by writing to the individual colleges and universities. Regulations and syllabuses should be carefully studied by intending candidates, since failure to comply with any condition might mean the withholding or withdrawal of the award. Details of most Oxford scholarships are published in the Scholarship number of the *Oxford University Gazette* in June each year and information about Cambridge awards is printed in the *Cambridge Reporter* and the *Students' Handbook*.

Grants for Higher Education contains information about open and closed awards at each university in the United Kingdom.

For prices, etc., see BIBLIOGRAPHY, p. 299.

Colleges of Education (formerly Teacher Training Colleges)

From the beginning of the academic year 1962-3, the following regulations have applied concerning grants for students in teacher-training establishments, excluding University Education Departments. They do not apply to teachers seconded on salary.

Dependent Students

The contribution due from students dependent upon their parents is assessed by the home Local Education Authority, that is the L.E.A. of the area in which the student is ordinarily resident on 30 June before his course begins. In the case of students living outside England and Wales, the L.E.A. area in which the training college is situated is responsible for the assessment and payment of the student's grant. If a student moves, the authority originally responsible for the student's grant remains responsible, for the duration of the course.

Usually, when accepted by a college, students are sent Form 104 RTC if dependent, or Form 104a if independent, and thereafter are sent the appropriate form annually until their course is completed. Having completed these forms, students should send them to their home L.E.A., who will assess the grant. In most cases the L.E.A. forwards the grant each term to the appropriate college for payment to the student.

All tuition is free to students receiving grants and to private students. No parental contribution is required from the parents of a dependent student if after deduction the balance of their income is less than £700. Allowances against the gross income of the parents are made for dependent children and adults, for tax-purposes allowances, for educational expenses of dependent children, for payments made under covenant (other than to the student concerned), and for domestic assistance if both parents are earning or one is incapacitated. If the student earns more than £100 in term time, the parental contribution is increased by the amount of the student's income in excess of £100.

The parental contribution is £16 at £800, £32 at £1,000, £48 at

Opportunities After O-level

£1,200, and £64 at £1,400, after which it is increased by £10 for each £100 of income. There are special income scales for Jersey, Guernsey, and the Isle of Man.

The maximum annual maintenance grants are: £133 for resident students, and for day students (a) home rate £250; (b) higher rate, London, £355; (c) higher rate, elsewhere, £325.

Independent Students

The grants for independent students are based on the same scale as that for dependent students, but any earnings over £100 are deducted in full from the grant. There are certain special allowances for widowers.

Independent students also qualify for the following grants: wife or adult dependant £175, first child £60, second child £40, third child £35.

An independent resident student may also qualify for a two-homes grant of £55 if he is eligible for a grant for dependants. If he has to support himself during the vacation, he can receive a grant of up to £60 a year. For students over twenty-five there is an additional grant of £15 per annum for each year attained over twenty-five on 31 August preceding the beginning of the course: the maximum is £75. This grant is given provided the student has earned an average gross yearly income of at least twenty-five per cent above the maximum grant.

Additional grants of £10 for travel between home and college, £23 for vacation keep, and £30 for books, materials, and equipment are available for dependent and independent students.

There are special arrangements for students attending Stranmillis College, Belfast, details of which can be obtained from the Department of Education and Science Form 101 RTC, which sets out all regulations concerning grants for students at teacher-training colleges in England, Wales, and Northern Ireland. Further information about grants can be obtained from your Local Education Authority.

Graduates taking a teacher-training course in the university Departments of Education receive the same allowances as for a degree course.

Other Full-Time Grants

Grants are not, of course, made only to university students, but it is not always clear just which courses are covered by the phrase

'comparable to first degree courses' and thus automatically qualify for assistance. There is a list in the Department of Education and Science's circular No 9 62, the following courses are mentioned:

Courses leading to the Diploma in Technology; a full-time course of at least three years' study at a university in the United Kingdom in preparation for the award of a certificate or diploma. Also there are the following courses, if full-time at any university or establishment of further education in the United Kingdom: A three-year course of study, or longer for the final examination of the Royal Institute of British Architects or in preparation for a qualification exempting the holder from that examination, a three-year course of study for the examination qualifying for graduate-ship of the Royal Institute of Chemistry or in preparation for a qualification exempting the holder from that examination, a three-year course of study for the Pharmaceutical Chemists' Qualifying Examination, a three-year course of study for one of the qualifying examinations recognized by the General Optical Council, a course of study for the College Associateship of the National College of Rubber Technology, the Royal Academy Schools course for the Royal Academy Schools Certificate, the Royal College of Art courses for Associateship (A R C A.), courses for the Royal College of Art Certificate of Design (Cert. Des. R C A) and the R C A Design (Des. R C A), courses at the Royal Academy of Music (G R S M), Royal College of Music (G R S M), Trinity College of Music, London (G.T.C.L.), Guildhall School of Music, London (G G S M, London), London College of Music (G L C M), Royal Manchester College of Music (G R C M, Manchester), Manchester Northern School of Music (G N S M, Birmingham and Midland Institute School of Music (G B S M)

All these are 'designated' courses, and there should be no difficulty in obtaining a grant for any of them.

If you intend to undertake courses about which no D E S. recommendation is made, you should contact the local Education Officer for advice about applications. L L A's also have discretionary powers in the case of post-graduate courses. Most will give grants for secretarial courses, diplomas in social studies, and other diplomas. A list of such courses appears in the *Grants Year Book*, 1963, published by the N U S. In most cases it would also be possible to get an

Opportunities After O-level

assessment of the chances of assistance and some estimate of the likely amount. All L.E.A. grants are subject to a means test.

Regulations governing 'sandwich' courses are much the same as those for full-time courses, except that the maintenance grant, which is given for all full-time courses, is £30 less than the amounts shown in the table on p. 231, and the minimum grant of £50 is not necessarily payable. Students on 'sandwich' courses are paid only for the number of weeks which they attend college.

Books Recommended

Grants Year Book 1963 A useful work, giving information about the dates by which I.F.A.s expect applications to be in, the system of payment, whether loans are made to students, etc. The booklet has been compiled from the answers given by I.F.A.s to questions put by the N.U.S., and it also contains the D.F.S. Circular 9/62 and the Statutory Instrument.

D.F.S. Circular 9/62

D.F.S. Circular 1/63 (for teacher training grants)

Education Committee Year Book

Grants for Higher Education

University and Other Awards Regulations 1962

For prices, etc. see BIBLIOGRAPHY, p. 249

Industrial Apprenticeships and Scholarships

Most firms and large organizations show a great interest in educating likely candidates to the highest possible level. Nearly every firm offers its apprentices the opportunity for part-time day study, and the range of courses taken is very large. H.N.C. and H.N.D. courses are popular, also so-called 'third-sandwich' courses leading to the Diploma in Technology. In these 'sandwich' courses six months is spent with the firm and six months at an appropriate C.A.T. or Technical College, it usually takes four years to gain the Diploma on this system.

If there is a nearby college with the requisite teaching and practical facilities, many apprentices with the necessary G.C.E. qualifications are encouraged to study for external degrees. At the moment over sixty C.A.T.s and regional colleges offer courses leading to London external degrees in such subjects as Botany, Chemistry, Economics, Engineering, Geology, Mathematics, Physiology, etc.

In the very near future these numbers should be doubled. If interested in such courses, you should consult *Where 12*, which has a list of courses available, *Full-Time Degree Courses outside Universities*, and also Chapters 3 and 4 of this book. In view of the rapid extension of such courses, you should also keep in touch with your local colleges. All students with 2 A-levels on a full-time first degree course are given a grant.

There is a list of firms offering opportunities for part-time and full-time study in the *Education Committee's Year Book* which is available in most reference libraries. A small proportion of companies mentioned provide 'thick sandwich' courses and university scholarships.

The term 'university scholarship' can be misleading. Some organizations do in fact offer outright scholarships which are sometimes the equivalent of an I F A grant and sometimes larger, but these are comparatively few. Many have recently withdrawn or modified their scholarship schemes because of the increase and standardization of I F A grants. Often a candidate is expected to put in for an I F A grant which the firm then supplements by £100 a year (this is the maximum amount which can be given without affecting the grant). A large number of firms now offer 'thick-sandwich' courses (also known as 1:3:1 courses) to apprentices in place of and sometimes as well as scholarships. Under this system an outside candidate who has been accepted at university defers his place for a year and works with the firm for a period greater than a year; after graduating he returns to the firm for a post graduate year. During his two years with the firm a student is paid on their normal wages scale according to his age and qualification. Many young men who are already apprenticed to a firm gain the qualifications necessary for admission to university under evening or part-time educational schemes and in effect do a 3:1 course.

The table overleaf will clarify the position.

It often happens that a company offering supplementary scholarships will give more assistance if a student needs it. Full scholarships are not usually subject to any means test.

Most scholarships offered are for engineering; there are also a good number of sponsors for mathematics, science, and allied subjects. A few firms are interested in arts students.

There are frequently conditions attached to the tenure of scholarships, other awards, and apprenticeships. Obviously in a 1:3:1

Opportunities After O-level

Table XII. Scholarship and Apprenticeship 'Sandwich' Courses

	<i>Paid by Firm</i>	<i>Paid by L E A</i>	<i>Remarks</i>
Scholarship (full)	Tuition fees and maintenance grant by firm £450 to £600, but sometimes less	Student eligible for £50 grant from L E A	Occasionally confined to particular college or university Becoming rare
Scholarship (supplementary)	£100	Fees and a maintenance grant paid according to scale given on p 231	Many full scholarship, being converted into supplementary scholarships Sometimes increased if student hard-lut by means test
Student Apprenticeships	Years before and after degree course	Tuition and maintenance according to scale	Becoming more frequent Excellent way of gaining practical experience

course a student has to return for a post-graduate year, and scholarship-holders are normally *expected* to work for the firm for a couple of years at least. One or two companies make an actual stipulation of time to be spent with them, and this can be anything up to five years. Most require no written agreement, but point out that they would feel that they had made a mistake in their selection if a scholar did not return to work for them for at least two years.

More firms are now interested in educating and training women apprentices. Occasionally they state that both men and women are eligible for awards, occasionally that they want only men apprentices. Mostly, however, they seem willing to consider each application from women students on its individual merits.

Candidates are almost always expected to obtain their own uni-

versity place. A company has no power to give a place, although sometimes connexions are built up with particular colleges and universities who have over a period taken nominees from the company and found them suitable for degree courses. Companies expect external candidates (as distinct from apprentices educated with the company) who apply for sponsorship to have obtained a very high standard at A-level in the G.C.E. Their assistance would not, in most cases, be given to a 'borderline' candidate. Students who would benefit most from holding industrial scholarships are those who have excellent academic qualifications but whose L.E.A. grant would be small because of their parents' income.

Books Recommended

Education Committees Year Book. A list of firms (not comprehensive) which run courses for apprentices

Full-Time Degree Courses outside Universities

Grants for Higher Education. A list of firms, giving details of schemes and the subjects in which firms are interested

Which University? A list with brief details, of firms which have paid for inclusion

Year Book of Technical Education and Careers in Industry. Similar to the *Education Committees Year Book*, with some information about a few of the firms mentioned

For prices, etc. see BIBLIOGRAPHY, p. 299

Courses Not Automatically Qualifying for a Grant

There are still plenty of courses of further education about which the D.F.S. gives no guidance whatever. The granting or withholding of assistance, and the amount considered adequate, are left to the discretion of the appropriate Education Officers. The first step, as stated above, is to go to your local office and make inquiries.

When asked about the candidate's chances, the Education Officers will usually reply that each case is considered on its merits. An applicant's petition will always be given consideration, and few students who genuinely wish to continue their training (and can usefully do so) will be refused help, although the degree of sympathy and flexibility does vary from Authority to Authority.

Applicants who have already been financed for the whole or part of a course of further education are most often refused help. Failure

Opportunities After O-level

during a university course, for example, would mean the withdrawal of the grant, and the Local Education Authority responsible would be unlikely to finance the student if he were re-accepted or gained a place at another university or college for more than the time which was left under his initial grant. In other words, if a student undertaking a three-year course had been on a grant for two years, and the grant was withdrawn, he might qualify for a further one-year grant if he gained a place on a similar course later on.

The yardstick used by some Authorities is the adequacy of previous courses. If a teacher-training course had been paid for, they would be unlikely to finance, say, a secretarial-training course; if one first-degree course has been completed, they would almost certainly refuse money for another first-degree course. On the other hand, a non-graduate teacher who wanted to take a degree would seem to have a reasonable chance of a grant, presumably because he would be gaining higher qualifications in the same sphere rather than abandoning the benefits of a previous training.

When applying for grants, candidates should take care that they are not asking the Authority to spend more money than is justified. If there is a college in the district providing a suitable course, a student would have to give a good reason for wanting to attend another college outside the area and for claiming travelling expenses. Authorities will usually give help if they themselves have no appropriate facilities. For example, many have paid correspondence-course fees in cases where there was no suitable course offered by an accessible day college. They would not, of course, finance anyone using education as a hobby (the ambition of a housewife wanting to learn Italian to G.C.E. level by correspondence is commendable, but unfortunately it is unlikely to be viewed favourably by a harassed officer with insufficient funds at his disposal); and they would quickly withdraw any assistance granted if it became obvious that the student was not taking the work seriously. In fact every student benefiting from Authority awards should remember that a check is kept on his progress and attitude to work.

So if you are seriously interested in taking a course of study, do approach your Education Officer, having considered whether (a) your preference of institution is defensible; (b) the qualification to be obtained is necessary for the work you want to do; and (c) whether they would be likely to give further financial aid, if you have already had one grant.

Students unable to obtain money for a course they are determined to pursue might be interested in the section dealing with charities and trusts (*see below*), and should pay particular attention to those organizations which offer interest-free loans.

The National Union of Students sends out a questionnaire each year to Local Education Authorities, in an attempt to clear up some of the problems caused by variations between them. They ask useful questions such as whether awards would be given to students taking degrees at Trinity College Dublin, Social Science Diplomas, Higher National Diplomas, or external degrees; the answers are published in their *Grants Year Book*.

Most Authorities seem willing to assist for any of these courses. *Grants for Higher Education* contains an analysis of I.E.A. attitudes to students wanting assistance for courses in Agriculture, Drama, Theology, second first-degree courses, and other non-designated forms of study.

Charities and Trusts

Another way of supplementing a grant is by funds from a charity or trust. There are a great many small trusts, and no comprehensive list has yet been published, although the Family Welfare Organization publishes a useful *Annual Charities Register and Digest*, which contains many of the more general trusts in the *Education* section. *Educational Charities*, a short list published by the National Union of Students, makes an attempt to systematize local charities, with various sections on funds available for students living in the south, the midlands, the north, Wales, and the Isle of Man, but the vast numbers involved make it almost impossible to produce a comprehensive list. *Grants for Higher Education* gives a more detailed but still incomplete list.

Those trusts with few or no restrictions are the easiest to find, and also the most oversubscribed. It is much more worthwhile for a student to take some trouble to find funds carrying some limitation which apply to his particular case. The most usual restriction is that of residence, and the first step towards finding local charities is to see your local Education Officer. Information about available funds – and especially the lesser known ones which receive few applicants – often finds its way to the Education Office, even if the Officer is not himself directly concerned in the assessment of applications. Other

Opportunities After O-level

local trusts are more difficult to find, but often solicitors or banks administer or have details about likely ones

Other possible sources of information are headmasters (since some trusts are restricted to particular schools), clergy, and local libraries. Scottish students should get in touch with the **Scottish Union of Students**.

Few trusts have the money necessary to finance a full course of education, although some professional institutions do provide maintenance grants for students aiming at the qualifications of their institute. The purpose of most trusts is to supplement grants, and the average award made is about £50 a year, some offer smaller grants to help buy books, instruments, etc.

If you are thinking of applying for assistance, you should make sure that you can show that you really need the extra money to follow your course of study to the best advantage. Money for books, approved travel and vacation courses could come under the heading of necessary expenses, if no grant for these could be obtained from the L.L.A.

Some funds are used for the purpose of giving interest-free loans. The loans are repaid when the applicant is earning sufficient to make a regular repayment. This is an excellent means of gaining a training, for candidates who are unable to obtain a grant or whose grant is inadequate.

Before approaching a charity or trust, you should check, as far as possible, to see that you are eligible and fulfil all the conditions governing the award of assistance. You should also be prepared to try as many suitable trusts as may prove necessary, since few have the funds to deal with more than a small number of applicants.

Other Grants

Department of Education and Science

State Scholarships are no longer awarded, and the D.E.S. now gives few grants. They pay for post-graduate teacher training and for art-training courses, although applications for these courses should go to the appropriate university Department of Education or Art Training Centre. The D.E.S. awards a few (usually up to thirty) 'mature' scholarships each year to candidates in England and Wales aged twenty-five or over who wish to follow an honours degree course in liberal studies (i.e. rather than technical or vocational training).

The purpose of the scholarships is to provide opportunities for university education for men and women who were unable to take a course at the normal age but who have followed some course of continuous study since leaving school. Further information about these scholarships can be obtained from the Awards Branch of the Department of Education and Science.

Extra-Mural Boards

Other scholarships for mature students are offered by Extra-Mural Boards at some universities. Cambridge, for example, each year awards one or more bursaries to adult students who can give evidence of previous *systematic* study which would fit them for university work. Most successful candidates in the past have read for Honours Degrees in History, Economics, and English, and it is generally felt that these and similar subjects are more suitable for adult students than courses leading to more specialized training for entry to professions such as medicine, law, engineering, etc. Even if an Extra-Mural Board has insufficient funds to finance students, they are an invaluable source of the advice often much needed by students who do not fulfil the conventional university entrance requirements. Their addresses are as follows.

- Aberdeen. Director, Department of Extra-Mural Studies, The University
Aberystwyth. Director, The University College
Bangor. Director, University College
Belfast. Director, Department of Extra-Mural Studies and Adult Education, Queen's University
Birmingham. Director, Department of Extra-Mural Studies, The University, Edgbaston
Bristol. Director, Department of Extra-Mural Studies, The University
Cambridge. Secretary, Board of Extra-Mural Studies, Stuart House
Cardiff. Tutor-in-Charge, University College, Cardiff Department of Extra-Mural Studies, 32 Corbett Road, Cathays Park
Durham. Director, Board for Extra-Mural Studies, 32 Old Elvet
Edinburgh. Director, Department of Extra-Mural Studies, The University
Exeter. Head, Department of Extra-Mural Studies, The University

Opportunities After O-level

Glasgow. Director, Department of Extra-Mural Education, 57-9 Oakfield Avenue, W2

Hull. Director, Department of Extra-Mural Studies, The University

Keele. Director, Department of Extra-Mural Studies, The University

Leeds. Head of Department, Department of Adult Education and Extra-Mural Studies

Leicester. Head of Department, Department of Adult Education, The University

Liverpool. Director, Department of Extra-Mural Studies, 9 Abercromby Square

London. Director, Department of Extra-Mural Studies, Senate House

Manchester. Director, Department of Extra-Mural Studies, The University

Newcastle. Director, Department of Extra-Mural Studies, The University

Nottingham. Director, Department of Adult Education, 14-22 Shakespeare Street

Oxford. Secretary, Delegacy for Extra Mural Studies, Rewley House, Wellington Square

Reading. Registrar, The University

St Andrews. Director, Department of Extra-Mural Committee, The University

Sheffield. Director, Department of Extra-Mural Studies, The University

Southampton. Director, Department of Adult Education, The University

Swansea. Director, University College

Wales. Secretary, The University Extension Board, University Registry, Cathays Park, Cardiff

Trades Union Congress

Older students interested in gaining the requisite qualifications for university entry might also be interested in the one-year scholarships awarded by the Trades Union Congress, which enable students to attend full-time courses at adult colleges. In 1964 scholarships were offered for courses at Ruskin College, Hillcroft College, Coleg Harlech, and the London School of Economics (the scholarships provided at L.S.E. are for the course in Trade Union Studies).

How to Pay

Candidates must be members of organizations affiliated to the T.U.C. who have not had the opportunity to undertake full-time education. They should be over twenty and under thirty-six, although in special circumstances students up to forty-one will be considered. The Secretary of the **Trades Union Congress Educational Trust** will give any further information to eligible students.

Workers' Educational Association

The **Workers' Educational Association** organizes courses for adult students, often in conjunction with Extra-Mural Boards. *Grants for Higher Education* contains further information about the grants discussed in this section.

8 Careers Index

This Index lists careers alphabetically, and gives the educational requirements and different methods of training for each one. In some cases there is one way of training for a career, while in others there may be three or four ways depending on your G.C.E. qualifications and the eventual position you want to reach in your chosen career. For example, if you have four G.C.E. O-levels after leaving school at fifteen or sixteen, and want a scientific or technical job, you might go straight into industry as an apprentice or junior employee and study for a National Certificate qualification. If, however, you want a managerial position, you would do better to stay at school so that you could go on to study for a degree or diploma. Many industrial and business organizations have schemes to finance the full-time higher education of promising employees. You could write to some firms, or to the appropriate professional body, for information about training and scholarship schemes. There is at least one such professional body (they are known as Institutes, Associations, or Societies) for almost every career, and they will grant membership only to those who are fully qualified in the profession. More detailed information is contained in the *Careers Encyclopaedia*, the *Careers Guide*, and the *Year Book of Technical Education and Careers in Industry* (see BIBLIOGRAPHY, p. 299).

In this Index, the different methods of training for each career are set out under the initial G.C.E. requirements. If you lack the specified G.C.E. qualifications, you may be required to take an entrance or preliminary examination of equivalent standard, to prove your ability. It must be remembered, of course, that G.C.E. qualifications will not always guarantee a course of higher education or further training. There are other hurdles to be cleared, since educational institutions and firms interview applicants, and some have their own examinations. Other organizations (notably H.M. Forces) require first class health and British nationality.

The numbers in square brackets in the Index indicate the chapters

Opportunities After O-level

in which more information can be found. For example, under ACCOUNTANCY you will find '5 or 6 O-levels including English Language and Mathematics or a degree [1] in any subject'; the number [1] indicates that you should turn to Chapter 1, which will tell you how to set about getting a degree.

In many cases the methods of training for a career are varied and complicated. In such cases you will find the name of the professional body of the career concerned, to which you should write for further information.

ACCOUNTANCY (Chartered, Certified, Corporate, Cost, and Works) 5 or 6 O-levels including English Language and Mathematics or a degree [1] in any subject, plus three, four, or five years' (according to previous qualifications) training period of employment in an accountant's office, combined with part-time study in preparation for the membership examinations of the chosen professional accountancy body. Further information from the **Institute of Chartered Accountants**.

ACTING - see **DRAMATIC ART**

ACTUARIAL WORK (1) 5 or 6 O-levels including English language or English Literature and Mathematics and any other 2 A-levels, plus a training period of full-time employment in an insurance office, normally six or seven years, while preparing for the Fellowship examinations of the **Institute of Actuaries** or in Scotland the **Faculty of Actuaries**; (2) an honours degree [1] in Mathematics, Statistics, or Economics, plus similar but shorter training period of four or five years. Further information from the I.A.

ADVERTISING 4 O-levels including English Language, or a university degree [1] usually in an Arts subject, Economics, or Sociology plus practical experience in an advertising office. Part-time study at a College of Further Education and at least three years' experience in a recognized advertising agency required of candidates for membership examinations of the **Advertising Association** or the **Institute of Practitioners in Advertising**. See also **JOURNALISM**; **MARKET RESEARCH**; **PUBLIC RELATIONS WORK**

ADVOCATE - see **BARRISTER**

AERODYNAMICS; **AERONAUTICAL ENGINEERING**; **AERONAUTICS** - see **AIRCRAFT INDUSTRY**; **ENGINEERING, MECHANICAL/ELECTRICAL**; **ROYAL AIR FORCE**

AGRICULTURE Formal qualifications advisable but not necessary for practical farming. Training courses vary according to branch of agriculture and type of employment chosen. *General Farming, Farm Foreman, Stockman*: a reasonable standard of general education plus one year's practical experience on farm plus one year's residential course at a

Farm Institute [5] for a certificate in Agriculture or special branch of agriculture. *Specialized Farming* [*Dairy Farming, Poultry Husbandry, etc.*], *Farm Manager, Bailiff*: 5 O-levels including English, Mathematics, Chemistry and Biology, plus one and a half years' practical experience on an approved farm plus two years' full-time course at an Agricultural College [5] for an appropriate diploma. *Agricultural Advisory or Technical Work, Research, Teaching, Land Commission Work*: one or two years' practical experience on an approved farm plus three-year or four-year university course for a degree [1] in agriculture or a related science, normally followed by a year's post-graduate specialist diploma course. *See also* ENGINEERING, AGRICULTURAL

AIRCRAFT INDUSTRY At least 5 O-levels including English, Mathematics, and Physics or Chemistry followed by three to five years (according to age and qualifications at entry) as an engineer apprentice in an aircraft construction firm or a year in the industry, a three-year full-time degree course at a university [1] as an undergraduate apprentice and a further year's training in the industry. Science graduates, or students of graduate standard, may also join the aircraft industry by taking a two-year full-time training course at the Government's College of Aeronautics, Cranfield, Bedfordshire. Further information in the *Aeroplane Directory of British Aviation*.

AIRCRAFT MAINTENANCE; AIR FLIGHT ENGINEERING; AIR FLIGHT RADIO OPERATION; AIR NAVIGATION; AIR PILOT; AIR TRAFFIC CONTROL — *see* CIVIL AVIATION; **ROYAL AIR FORCE** (AIR FLIGHT ENGINEERING *see also* ENGINEERING)

AIR HOSTESS, AIR STEWARDESS — *see* CIVIL AVIATION

ALMONER A degree [1] in Social Science [1] or a degree in any subject [1] plus a post-graduate certificate or diploma in Social Science (one-year or two-year course) [1, 3, 4] or a two-year non-graduate certificate or diploma in Social Studies [1, 3, 4] followed in all cases by a year's professional course at certain universities [1] or the **Institute of Almoners** including training in practical social work, leading to the Certificate of the Institute of Almoners. Further information from the I.A. *See also* FAMILY CASEWORK; SOCIAL WORK

ANALYTICAL CHEMISTRY — *see* CHEMISTRY

ANAESTHETICS — *see* MEDICINE

ANATOMY — *see* BIOLOGY; MEDICINE

ANIMAL NURSING 3 O-levels plus two or three years' employment as an assistant at an approved training centre (either a veterinary hospital or private practice) and part-time study for the animal-nursing examinations of the **Royal College of Veterinary Surgeons**, to qualify as a Registered Animal Nursing Auxiliary. *See also* VETERINARY SURGERY

ANTHROPOLOGY An honours degree [1] plus practical experience of field work.

Opportunities After O-level

ARCHAEOLOGY A degree [1] in Archaeology or a degree [1] in History, Classics, or a modern language plus a diploma in Archaeology or a specialized branch of archaeological work. Further information from the **Institute of Archaeology**. See also **ARCHITECTURE**; **ARCHIVE WORK**; **MUSEUM WORK**

ARCHITECTURE 5 G.C.E. subjects including 2 A-levels in English Language and Mathematics or a Science subject plus a five-year full-time course at one of thirty Schools of Architecture [5] recognized by the **Royal Institute of British Architects**, and two years' practical experience in an architect's office, culminating in the examination in Professional Practice and Practical Experience, giving the successful candidate R.I.B.A. associateship and entitling him to apply for registration. There are also a number of part-time courses, but the R.I.B.A. recommends all students to follow a full-time course wherever possible.

ARCHIVE WORK A degree [1] in History (for preference), Classics, or Law, followed by a year's research or diploma course in Archive Administration at a university. Further information from the University of London **School of Librarianship and Archivists**.

ARMED FORCES - see **ARMY**; **ROYAL AIR FORCE**; **ROYAL MARINES**; **ROYAL NAVY**

ARMY [*Commissioned Officers, men*] Two-year training course at the **Royal Military Academy** at Sandhurst, to which entry is by personal interview and examination for candidates with passes in 3 O-levels including English Language. Exemption from entrance examination is granted to candidates with passes in 5 G.C.E. subjects including 2 A-levels including English Language, Mathematics, an approved Science subject or a foreign language, and 2 other approved subjects. Candidates for commissions in the technical corps of the Army may take a two-year course at Welbeck College (entry requirements are standard equivalents to passes in 4 or 5 O-levels, including Mathematics and Science, with Physics, English Language, and preferably Chemistry and a foreign language also) before proceeding to Sandhurst for two years and thence to a degree course at the R.M.A. of Science at Shrivenham, or at Cambridge [1]. Further information from the **Army Information Office**.

Commissioned Officers - Women's Royal Army Corps: 5 O-levels including English Language and Mathematics or a Science subject plus an eleven-month training period as an officer cadet at the W.R.A.C. School of Instruction, Hindhead, Surrey, or a degree [1], plus a shorter training period as an officer. Further information from the **War Office** (MP6).

ART [Fine and Commercial] 5 O-levels including English Language and 2 other academic subjects followed by a one-year or two-year pre-diploma general art course [5] and a three-year course for Diploma in Art and Design at an approved School of Art or College of Art [5], where the student may specialize in his or her chosen branch of design.

ASTRONOMY Honours degree in Mathematics or Physics or a degree in Astronomy from the University of London or the University of Glasgow [1].

ATOMIC ENERGY Entry requirements for the U.K. Atomic Energy Authority vary according to class of employment. *Scientific Officer*: A 1st or 2nd class honours degree [1] in a scientific subject. *Experimental Officer and Student Apprentice*: 5 G.C.E. subjects including O-level English Language and 2 mathematics or Science A-levels. *Executive Officer*: 5 G.C.E. subjects of which 2 (including English or Mathematics) must be at A-level. *Scientific Assistant*: 4 O-levels including English Language and Mathematics or a Science subject. The Authority provides extensive training with pay for newly recruited staff. Promising employees may even be financed for a full-time university course [1].

AUCTIONEERING AND ESTATE AGENCY 4 O-levels including English Language and Mathematics followed by a period (normally three years if served under articles) of full-time approved employment and part-time study to qualify for membership of the **Chartered Auctioneers and Estate Agents Institute** or the **Incorporated Society of Auctioneers and Landed Property Agents**. Alternatively, a full-time course at an approved college (details from C.A.E.A.I., or a three-year degree course in Estate Management [4] followed by two years' practical experience in approved employment. *See also* LAND AGENCY; SURVEYING, BUILDING/QUANTITY/VALUATION

AUDIOLOGY 3 O-levels including Physics and Biology plus a one-year training course to qualify for membership of the **Society of Audiology Technicians**.

AUTOMOBILE ENGINEERING - *see* ENGINEERING, AUTOMOBILE/MECHANICAL

BACTERIOLOGY - *see* BIOLOGY; MEDICINE

BAKING INDUSTRY 2 O-levels plus a two-year full-time course at an approved college or a three-year 'sandwich' course leading to a **National Bakery Diploma**. Details from the **National Board for Bakery Education**.

BANKING Entry requirements vary from bank to bank; normally 4 or 5 O-levels including English and Mathematics. Higher qualifications may be required for managerial positions. All bank employees are encouraged to take a Banking or Trustee Diploma requiring at least three years' part-time study at certain technical or commercial colleges [4] and entrilling holder to Associateship of the **Institute of Bankers** or the **Institute of Bankers in Scotland**.

BARRISTER (England and Wales); **ADVOCATE** (Scotland) 5 G.C.E. subjects including English Language and Latin at O-level and 2 at A-level plus three years' full-time study at one of the 4 Inns of Court (Lincoln's

Opportunities After O-level

Inn, Middle Temple, Inner Temple, Gray's Inn) plus one year's practical experience in a barrister's chambers. Undergraduates [1] may also keep terms at one of the Inns of Court and study for the Bar Final examinations while at the same time studying for a law degree, if their university is within easy travelling distance of London. A degree [1] in law (LL.B. or Hons. Bachelor of Laws) or an appropriate Arts subject is necessary to become an Advocate in Scotland; Entry to the **Faculty of Advocates** is by private examination in General Scholarship and Law (equivalent to the M.A. and LL.B. degrees of a Scottish university) and by an oral public examination following a petition to the Court of Session presented by the Intrans (candidate). Further information from the **Council of Legal Education**.

BIOCHEMISTRY A degree [1] in Biochemistry or a degree [1] in Biology or Chemistry plus a one-year full-time (two or three years' part-time) post-graduate course [1] leading to a Diploma in Biochemistry or a higher degree. Further details from the **Royal Institute of Chemistry**. See also **BIOLOGY**; **CHEMISTRY**; **MEDICINE**; **VETERINARY SCIENCE**; (for work in Biochemistry for which a university degree [1] is not necessary - see **MEDICAL LABORATORY TECHNOLOGY**).

BIOLOGY *Laboratory Assistant*: 4 or 5 O-levels including English, Mathematics, and a Science subject plus a three-year part-time course at a Technical College [4] in preparation for O.N.C. in Biology. *Research Assistant*: 5 or 6 G.C.E. subjects at O-level including English Language, Mathematics, Physics, Chemistry, and Botany and/or Zoology, and another Science subject at A-level plus four or five years' part-time study at a Technical College [4] in preparation for an external degree of the University of London or a Diploma of Technology [3, 4] in Applied Biology or Biochemistry or H.N.C. or H.N.D. in Biology [4]. *Teaching and Experimental Work*: A degree [1] in Biology or a special branch of Biology, e.g. Anatomy, Bacteriology, Biochemistry, Botany, Genetics, Pharmacology, Physiology, Zoology. *Membership of the Institute of Biology*: An honours degree [1] plus three years' practical experience or a pass degree [1] plus five years' practical experience such as teaching or research in the scientific Civil Service, a biology laboratory, or a research institute. Non-graduates may qualify for membership by examination. See also **AGRICULTURE [Advisory and Technical]**; **HORTICULTURE**; **MEDICINE**

BOOK PUBLISHING No specific qualifications are required. For editorial posts a degree [1] is an advantage, for book production a diploma in Book Production, generally awarded after a two-year course at a College of Art [5] or Technical College [4]. Further details from the **Publishers Association**.

BOOKSELLING No specific qualifications required. Course of study for Diploma in Bookselling of the **Booksellers Association** should be

followed. Two years' experience with a member of the Booksellers Association necessary in order to qualify. Also National Retail Distribution Certificate. Further details from the Booksellers Association.

BOTANY — see **BIOLOGY**; **HORTICULTURE**

BREWING For associate membership of the **Institute of Brewing** at least two years' practical experience in a brewery are required, plus (1) 5 O-levels including English Language and Mathematics and full-time study at a Technical Institute [4] in preparation for the associate membership qualifying examination; or (2) 5 G.C.E. subjects including English, Chemistry, Mathematics, and Physics, of which Chemistry and Physics or Mathematics or Biology or Botany are at A-level, plus a three-year course for the Diploma of Brewing of the **British School of Malting and Brewing**, University of Birmingham [1] or the Associateship in Brewing at the Heriot-Watt College, Edinburgh; or (3) degree [1] in Science plus a one-year special post-graduate course in Brewing.

BROADCASTING Most vacancies in the **B.B.C.** require specialized training and qualifications (e.g. dramatic art, education, engineering, films, journalism). There are a limited number of openings for graduates with honours degrees in Arts or Science subjects [1] to train with the **B.B.C.** for a period of one and a half or two years in general production work and studio management or technical engineering. School-leavers with Mathematics and Physics A-levels may also be taken on to train for three years as technical operators and assistants, combining practical work with part-time study at the **B.B.C. Engineering Training School**, New Evesham, and through a correspondence course of the **B.B.C.** Also further details from **A.B.C. Television**.

BROKING — see **INDUSTRY AND COMMERCE**; **INSURANCE**; **SHIP-BROKING**; **STOCK EXCHANGE**

BUILDING *Administrative, Technical, and Managerial Positions*: 4 or 5 O-levels including English Language, Mathematics, and a Science subject (Mathematics and a Science A-level are an advantage) plus four or five years as an articulated pupil in a building firm combining practical work with part or full-time (two or three years) study at a Technical College [4] for the **O.N.C.** and **H.N.C.** or **O.N.D.** and **H.N.D.** in Building or a degree [1] in a building subject, or Diploma in Technology (Building) [3, 4] plus two years' practical experience with a building firm. Further details from the **Building Societies Institute**.

BUILDING SOCIETY WORK 4 O-levels including English and Mathematics or 2 O-levels and one A-level plus employment with a building society supplemented by part-time study at day or evening classes [4, 5] in preparation for the examinations of the **Building Societies Institute**.

BUILDING SURVEYING — see **SURVEYING**, **BUILDING**

BUFSARSHIP — see **DOMESTIC SCIENCE**

Opportunities After O-level

BUSINESS—see INDUSTRY AND COMMERCE

CARTOGRAPHY [Ordnance Survey Department, **Civil Service Commission**] O-levels in at least 3 of the following: English Language, Geography, Mathematics, an Arts or Science subject, a foreign language, Surveying. *See also* ART; CIVIL SERVICE; SURVEYING, LAND

CATERING AND HOTEL INDUSTRY (1) 3 O-levels preferably including English and a Science subject plus a two-year full-time course in general catering at a Technical College [4] leading to a Certificate in Institutional Housekeeping and Catering; (2) 5 O-levels including English Language or English Literature and 3 other approved subjects plus a three-year full-time advanced or managerial course at a Technical College [4] leading to a Diploma in Institutional Management or O.N.D. or H.N.D. in Hotel-Keeping and Catering; the latter qualifies for membership of the **Hotel and Catering Institute**, and in both cases two to five years' practical experience in the industry is required to complete training; (3) employment in a hotel or catering establishment as a trainee or apprentice plus four or five years' part-time study at a Technical College [4]. *See also* DOMESTIC SCIENCE

CERAMICS *Manager's Diploma*: No formal educational qualifications are required for entry to a three-year 'sandwich' course alternating practical experience in the industry with periods of full-time study at the College of Ceramics, Stoke-on-Trent. *Diploma in Ceramics (Scientists)*: Chemistry and Physics at least at O-level with one of these subjects at A-level, preferably plus a three-year full-time course at the College of Ceramics. Both these Diplomas carry exemption from the Associateship examinations of the **Institute of Ceramics**. *Designers of Ceramics*: A three-year full-time course at the College of Ceramics or College of Art Burslem, Stoke-on-Trent [5], or a three-year full-time course at a recognized School of Art or College of Art [5] for the National Diploma in Design, followed by a one-year full-time course at the College of Ceramics or College of Art, Burslem, or nine months in industry if trained at the School of Ceramics of the **Royal College of Art** [5].

See also ART

CERTIFIED AND CHARTERED ACCOUNTANCY—see ACCOUNTANCY

CHARTERED SECRETARY—see SECRETARIAL WORK

CHEMICAL ENGINEERING—see ATOMIC ENERGY; ENGINEERING, CHEMICAL; OIL INDUSTRY; PLASTICS

CHEMISTRY (1) 5 O-levels including English, Mathematics, a Science subject and an Arts subject plus (a) a three-year full-time course at a Technical College [4] leading to Graduate Membership of the **Royal Institute of Chemistry** or (b) three to five years' part-time study [4] while working as a laboratory assistant or technician, for the O.N.C. and H.N.C. in Chemistry or Applied Chemistry; (2) 6 G.C.E. subjects of which 2 or 3 are at A-level (Chemistry and Mathematics or Physics)

plus (a) a three-year or four-year full-time course at a Technical College [4] for a Diploma in Technology or in the Chemical field or graduate membership of the R.I.C. or a degree [1] in Science with honours in Chemistry; or (b) five years' part-time study at an evening class [4] while working in the chemical industry for an external B.Sc. Special Degree in Chemistry of London University [1]. *See also* AGRICULTURE [Advisory or Technical]; BIOCHEMISTRY; MEDICINE

CHILD CARE Degree course [1] plus a special one-year or two-year certificate course, plus a special year in Social Science (special year a post-graduate university course [1]), conducted in association with the **Central Training Council in Child Care**, to qualify as a Child Care Officer. *See also* HEALTH VISITING; SOCIAL WORK; TEACHING

CHILD GUIDANCE - *see* PSYCHOLOGY, EDUCATIONAL

CHIROPODY 4 O-levels plus a three-year full-time course at an approved training school (list available from the **Society of Chiropodists**) to qualify for membership and inclusion on the Register of the **Board of Medical Auxiliaries**.

Schools: Foot Hospital and School of Chiropody, Anson Road, Victoria Park, Manchester, *Lancashire*; School of Chiropody, Salford Technical College, 28-29 The Crescent, Salford, *Lancashire*; Chelsea School of Chiropody, 250 King's Road, London SW3; Foot Clinic and School of Chiropody, 81 Newington Road, Edinburgh, *Scotland*; Foot Clinic and College of Chiropody, 22 Windsor Terrace, Glasgow (and 48 Cumberland Street, Glasgow) *Scotland*; School of Chiropody, Llandaff Technical College, Cardiff, *Wales*; School of Chiropody, General Dispensary, 41 Newhall Street, Birmingham 3, *Warwickshire*.

CHURCH MINISTRY All denominations normally require a degree [1] plus two to four years' training at a theological college [5], or three to seven years' training at a theological college [5] of degree standard. Further details from the **British Council of Churches**.

CINEMA - *see* FILM INDUSTRY

CIVIL AVIATION [Operational] *Aircraft Maintenance, Flight Engineer, Flight Radio Operator, Flying Instructor, Navigator, Pilot:* All require Ministry of Aviation licences to operate, gained by practical experience in flying and normally a two-year full-time training course at one of various schools or colleges established for this purpose, such as the College of Air Training, Hamble, Hants., (entry qualifications 5 G.C.E. subjects of which 2 are A-level, including English Language and Mathematics or a Science subject). Further details from the **Ministry of Transport and Civil Aviation**. *Air Hostess, Air Stewardess:* Several G.C.E. subjects and knowledge of at least one continental language, plus six to eight weeks' training at a training school run by the Airline. *Air Traffic Control Officer:* 5 G.C.E. subjects including English Language and 2 A-levels (of which one is Mathematics or a Science subject)

Opportunities After O-level

to qualify for Ministry of Aviation cadetship, and four years' training at the Ministry's **School of Air Traffic Control**, Hurn, Hants. *Air Traffic Control Assistant*: 4 O-levels including English and Mathematics or a Science subject plus a three-week course at the School of Air Traffic Control.

CIVIL ENGINEERING—see **ENGINEERING, CIVIL**

CIVIL SERVICE Entry is by Civil Service Commission examination and interview, or by interview alone for those with specified qualifications or their equivalents, as set out below. Facilities for further education and specialized training are provided within the Civil Service. *Junior Posts* [*Draughtsmen, Plans Assistants, Ordnance Survey Department*]: 3 O-levels from the following list: English Language, Mathematics, Geography, Art, Geometrical and Mechanical Drawing, a Science subject, a modern or classical language, or Surveying. *Clerical Grades* [*Clerical Officers in Home and Foreign Service, Scientific Assistants, Assistant Preventive Officers in Customs and Excise Department, Technical Grades, Postal and Telegraph Officers, apprenticeships in Engineering and Quantity Surveying*]: 5 O-levels including English Language, Mathematics, and other specified subjects, according to type of work desired. *Executive Grades* [*Executive Officers, Officers of the Customs and Excise Department, Experimental Officers, Post Office Telecommunications Traffic Superintendents, Assistant Engineers, student apprenticeships in Engineering*]: 5 specified G.C.E. subjects (according to type of work desired) including English Language and 2 A-levels. *Administrative Grades*: 2nd-class honours degree [1] or equivalent professional qualification.

CLINICAL PSYCHOLOGY—see **PSYCHOLOGY**

CLOCKMAKING—see **SCIENTIFIC INSTRUMENT MAKING**

CLOTHING INDUSTRY [*Management*] For the new Diploma in Clothing Technology of the Domestic and Trades College, Manchester, 5 G.C.E. subjects including 2 A-levels plus a three-year full-time course [4]. See also **DRESS DESIGN**; **TEXTILE TECHNOLOGY**

COAL MINING INDUSTRY—see **ENGINEERING, MINING**; **FUEL TECHNOLOGY**; **GEOLOGY**; **SURVEYING, MINE**

COLONIAL OFFICE—see **CIVIL SERVICE**

COMMERCE—see **INDUSTRY AND COMMERCE**

COMMERCIAL ART—see **ART**

COMPANY SECRETARY—see **SECRETARIAL WORK**

COMPUTER WORK *Computer Programmer*: degree [1], preferably in Mathematics plus short training and experience in a Computing Department. *Assistant Programmer*: good G.C.E. passes including Mathematics at A-level plus training and experience in a Computing Department.

COOKERY—see **CATERING AND HOTEL INDUSTRY**; **FOOD PROCESSING AND PRESERVATION**; **DOMESTIC SCIENCE**

COPYWRITING — see **ADVERTISING; BOOK PUBLISHING**

CORPORATE ACCOUNTANCY — see **ACCOUNTANCY**

COSMETIC RESEARCH — see **CHEMISTRY**

COST ACCOUNTANCY — see **ACCOUNTANCY**

COUTURE — see **DRESS DESIGN**

CUSTOMS AND EXCISE — see **CIVIL SERVICE**

DAIRY FARMING — see **AGRICULTURE**

DANCING *Dancing Teacher*: normally **Royal Academy of Dancing** Elementary Examination plus 5 O-levels including English Language, English Literature, French and Biology, History, Art, or Music plus three years' full-time training at a School or College of Dancing [2, 5]. *Professional Dancers*: many years of training, preferably starting in childhood.

DATA PROCESSING — see **COMPUTER WORK**

DEMONSTRATING Gas and Food Industries: 3 O-levels plus a two-year full-time certificate course or a three-year full-time diploma course in a domestic subject or a teacher-training course in House Economics or Teaching at a recognized Training or Technical College [2, 4]. *Electrical Industry*: 3 O-levels plus a two-year full-time certificate course in a domestic subject at a recognized Training or Technical College [2, 4] plus a course in electricity for the Electrical Housecraft certificate of the **Electrical Association for Women**, plus at least four years' experience in the industry before taking the qualifying test for the E.A.W. Diploma. Further details from the **Gas Council**. See also **DOMESTIC SCIENCE**

DENTISTRY 5 or 6 G.C.E. subjects (including 2 A-levels) including English Language, a foreign language, Mathematics, and another Science subject plus a five-year or six-year degree course [1] in Dental Surgery (B.D.S.) or a five-year course at a dental school for an I.D.S. diploma. Further details from the **General Dental Council**. There are schools of dentistry at the universities of *Birmingham; Bristol; Leeds; Liverpool; London* (Guy's Hospital, King's College Hospital, London Hospital, Royal Dental Hospital, University College Hospital); *Manchester; Newcastle-upon-Tyne; Sheffield*; in Scotland, *Edinburgh, Glasgow, St Andrews* (at Dundee); and in Northern Ireland, *Belfast*.

DESIGN — see **ARCHITECTURE; ART; CERAMICS; DRESS DESIGN; INTERIOR DESIGN**

DIETETICS 5 O-levels including English Language and preferably Chemistry and Mathematics: (1) A three-year or four-year (depending on level of G.C.E. qualifications) full-time course at a C.A.T. or Technical College [3, 4] including six months' practical training in hospital, in preparation for a Diploma in Dietetics; or (2) one of the following preliminary qualifications: (a) a degree [1] in Household Science, Nutrition, Domestic Science, or Pure Science including Chemistry and

Opportunities After O-level

Physiology plus three months' concentrated cookery training; (b) **State Registration in Nursing** plus three months' concentrated cookery training; (c) a **Teacher's Diploma in Domestic Science** [2]; (d) a **Diploma in Institutional Management** or **Certificate in Institutional and Catering Management** at a **Domestic Science College** [2] or **Technical College** [4] of the **Institutional Management Association**; or (3) associate membership of the **Hotel and Catering Institute** followed by a one-year full-time or a three-year part-time course at certain universities [1] or **Domestic Science Colleges** [2], or at a hospital, plus in both cases six months' practical training in hospital, in preparation for a **Diploma in Dietetics**. Further details from the **British Dietetic Association**. See also **CATERING AND HOTEL INDUSTRY**; **DOMESTIC SCIENCE**; **FOOD MANUFACTURING INDUSTRY**; **NURSING**; **TEACHING**

DISPENSING A good standard of education (preferably including O-level English Language, Mathematics, and a Science subject) plus full or part-time training at a pharmaceutical college (maximum period two years) in preparation for the examinations of the **Society of Apothecaries**, followed by a period in hospital or retail practice. See also **PHARMACY**

DOCTOR—see **MEDICINE**

DOMESTIC SCIENCE (1) 3 O-levels plus a two-year full-time course at the Church of England College, College of All Saints, Tottenham, London, or the Bristol College of Technology [3], followed by a year's approved employment to qualify for the **Matron-Housekeeper Certificate** of the **Institutional Management Association** (for other I.M.A. diplomas and certificates see **CATERING AND HOTEL INDUSTRY**); (2) 5 O-levels including English Language, Mathematics, or a Science subject, and an Arts subject, plus a three-year full-time course at a **Domestic Science College** [2] or **College of Education** [2] for a **Teacher's Diploma in Domestic Science**; (3) 5 G.C.E. subjects including Mathematics or Physics and Chemistry plus Biology, Zoology, Botany, or Physics at A-level, to qualify for a three-year course at the university of London [1] leading to a degree in Household Science or Nutrition, or a four-year course at the University of Bristol [1] for a degree in Domestic Science. See also **CATERING AND HOTEL INDUSTRY**

DRAMA TEACHING AND SPEECH TRAINING 5 O-levels and a three-year diploma course at a drama school [2, 5] recognized by the Department of Education and Science as qualified to train drama teachers.

DRAMATIC ART A two-year or three-year diploma course at a drama school [5]. Entry by audition; no specific educational requirements necessary.

DRAUGHTSMANSHIP, ENGINEERING O-levels including Mathematics and a Science subject plus five years' apprenticeship with an engineering

firm supplemented by part-time study at a Technical College [4] in preparation for technical or professional examinations according to the branch of engineering chosen. Further details from the **Institute of Engineering Designers** and the **Draughtsmen's and Allied Technicians Association**. See also **ENGINEERING**

DRESS DESIGN (1) O-levels preferably including French, Art, and Needlework plus four years' comprehensive training in a workroom supplemented by part-time attendance at a Technical College [4] or School of Art [5] to study Designing, Dressmaking, Tailoring, etc. or a two-year or three-year full-time course at a Technical College [4] or School of Art [5]; (2) 5 G.C.E. subjects O- and A-level plus a three-year course at the **Royal College of Art School of Fashion Design** [5], plus nine months in the fashion industry, to qualify for the R.C.A. Diploma of Design. Further details in Choice of Careers pamphlet 10, *Dress Designer*. See also **ART**

DYEING TECHNOLOGY - see **TEXTILE TECHNOLOGY**

ECONOMICS An honours degree [1] in economics or a specialized branch of economics.

EDUCATION - see **TEACHING**

EDUCATIONAL PSYCHOLOGY - see **PSYCHOLOGY**

ELECTRICAL ENGINEERING - see **ELECTRICITY SUPPLY INDUSTRY; ENGINEERING, ELECTRICAL**

ELECTRICITY SUPPLY INDUSTRY *Non-Technical Posts:* 4 O-levels including English plus two to four years' practical training and employment in the commercial or accountancy departments of the industry. *Technical Posts:* (1) 4 or 5 O-levels including English, Mathematics, and a Science subject plus five years as a student apprentice in the industry combining practical training with part-time study at a Technical College [4] for H.N.C. in Electrical or Mechanical Engineering; (2) Mathematics and a Science subject at A-level plus five years as a student apprentice in the industry alternating practical training with periods of full-time study at a Technical College [4] ('sandwich' course) for a Dip.Tech. (college or H.N.D.) in Electrical or Mechanical Engineering; (3) diploma [3, 4] or degree [1] in Electrical or Mechanical Engineering plus two years' practical training in the industry. Further details from the Education and Training Officer, **Electricity Council**. See also **DEMONSTRATING**, [*Electrical Industry*]; **ENGINEERING, ELECTRICAL/MECHANICAL**

ELECTRO-ENCEPHALOGRAPHY O-level English Language, Mathematics and a Science subject plus a short course of training in a hospital. Further details from the **General Medical Council**.

ELECTRONIC ENGINEERING - see **CIVIL SERVICE; COMPUTER WORK; ENGINEERING, ELECTRICAL/RADIO AND ELECTRONIC; PHYSICS ENGINEERING** Every branch of engineering has its own Institution or

Opportunities After O-level

Society, each with its individual entry requirements and professional examinations (from which holders of degrees [1] or diplomas [3, 4] in Engineering are usually exempt). Those who wish to be professional engineers (as opposed to engineering technicians, whose academic qualifications need not exceed an O.N.C. or H.N.C. [4] in Engineering) should aim for associate membership in their chosen Institution, for which the minimum general requirements are: (1) a prescribed academic standard - degree [1], diploma [3, 4], or pass in the final examination set by the Institution itself; (2) a period of supervised practical training, usually for two years; (3) employment in a responsible technical position, probably for two years, as the minimum age of admission to associate membership is normally twenty-five. For details of the different methods of training in the various branches of engineering, for both professional engineers and technicians, *see below*. Further details from the **Royal Aeronautical Society**. *See also* DRAUGHTSMANSHIP, ENGINEERING ENGINEERING, AERONAUTICAL - *see* AIRCRAFT INDUSTRY; ENGINEERING, MECHANICAL/ELECTRICAL; ROYAL AIR FORCE

ENGINEERING, AGRICULTURAL (1) Five years' apprenticeship served with a firm of agricultural engineers (*see* ENGINEERING, MECHANICAL 1); (2) 5 G.C.E. subjects including Mathematics and Physics (or another Science subject) at A-level plus a three-year full-time course at the **National College of Agricultural Engineering** for its Associate-ship in Agricultural Engineering, followed by a year's practical engineering experience with an approved firm; (3) a degree [1] or O.N.C. [4], or diploma [3, 4, 5] in Engineering or Agriculture followed by a year's full-time course at an approved college [4, 5] for the National Diploma in Agricultural Engineering and a further year (for those with an Engineering degree or diploma) gaining practical experience on a mechanized farm or with a firm of agricultural engineers. Further information from **Institution of British Agricultural Engineers**.

ENGINEERING, AUTOMOBILE (1) The five-year apprenticeship method of training (*see* ENGINEERING, MECHANICAL 1) is recommended; or alternatively (2) a four-year full-time course at the Loughborough College of Technology [3] where practical training is combined with study for the College Diploma which gives exemption from the professional examinations of the **Institute of the Motor Industry**. Further information from the Automobile Division, **Institution of Mechanical Engineers**. *See also* ENGINEERING, MECHANICAL 2

ENGINEERING, CHEMICAL (1) Mathematics, Chemistry, and Physics O-levels plus four or five years' student apprenticeship with a firm of chemical engineers supplemented by part-time study at a Technical College [4] for O.N.C. in Mechanical Engineering followed by the H.N.C. in Chemical Engineering or the examinations of the **Institution of Chemical Engineers**; (2) degree [1] in Chemical Engineering

with-practical experience in the industry during vacation; or a degree [1] in Chemistry, Physical Sciences, or Mechanical Engineering followed by a year's full-time postgraduate course in Chemical Engineering; or a four-year or five-year full-time course, preferably on a 'sandwich' basis, at a Technical College [3, 4] for a diploma in Chemical Engineering. Requirements for practical training are less specific than in other branches of engineering, but candidates for associate membership of the Institution of Chemical Engineers must have had several years' experience in the industry to qualify. *See also* ATOMIC ENERGY; OIL INDUSTRY; PLASTICS

ENGINEERING, CIVIL [including HIGHWAY/MUNICIPAL/PUBLIC HEALTH/SANITARY/STRUCTURAL] (1) 4 O-levels including English, Mathematics, and either 2 approved Science subjects or a Science subject and a foreign language, plus three years' practical training as a pupil or apprentice with an approved firm of civil engineers and part-time study at a Technical College [4] for the H.N.C. in Civil Engineering or the examinations of the **Institution of Civil Engineers**, followed by two years' engineering experience to qualify for associate membership; (2) a degree [1] or H.N.D. [4] in Civil Engineering followed by two years' practical training as a graduate assistant with an approved firm of civil engineers and a further year's engineering experience and part-time study [3, 4] to qualify for associate membership.

ENGINEERING, ELECTRICAL (1) 5 G.C.E. subjects including English at O-level and Mathematics or Physics (preferably both) at A-level plus a five-year student apprenticeship with a firm of electrical engineers, part-time study at a Technical College [3, 4], preferably a 'sandwich' course, leading to a Dip.Tech.(Eng.) or to H.N.C. in Electrical Engineering and a College Associateship; or seven years' employment and part-time study for a H.N.C. in Electrical Engineering and the professional examinations of the **Institution of Electrical Engineers**; (2) degree in Electrical Engineering or Physics [1] or a Technical College Dip.Tech.(Eng.) [3, 4] followed by two years as a graduate apprentice in the industry, or one year only if the degree or diploma course has been preceded by a year's practical experience of Electrical Engineering. *See also* ELECTRICITY SUPPLY INDUSTRY

ENGINEERING, GAS (1) 4 O-levels including English, Mathematics, and either 2 approved Science subjects or a Science subject and a foreign language, plus junior employment as an articulated pupil with a Gas Board or gas engineers with part-time study at a Technical College [4] (or four-year 'sandwich' course) for the O.N.C. in Mechanical Engineering and/or H.N.C. in Civil Engineering (Gas) or Mechanical Engineering; (2) degree [1] in Science, Engineering, Chemical Engineering, or Gas Engineering or study at a Technical College [4] for the H.N.D. in Civil or Mechanical Engineering, followed by two years of practical

Opportunities After O-level

training. *See also* **FUEL TECHNOLOGY**. Further information from the **Institution of Gas Engineers**.

ENGINEERING, HEATING, VENTILATION, AND REFRIGERATION (1) 4 or 5 O-levels including English, Mathematics, and either 2 approved Science subjects or a Science subject and a foreign language plus three-year apprenticeship with a suitable firm supplemented by part-time study for the O.N.C. in Mechanical Engineering and towards the H.N.C.; or (2) 5 O-levels (including English), and Mathematics and Physics A-levels; followed in both cases by a year's full-time course at the **National College of Heating, Ventilating, Refrigeration, and Fan Engineering**, for the College Diploma [4] which gives exemption from the examination requirements of the respective professional Institutions; or (3) a degree [1] or diploma [3, 4] in Engineering or Physics or H.N.C. in Mechanical Engineering, followed by a year's advanced course at the National College for Heating, Ventilating, Refrigeration and Fan Engineering. Further information from the **Institution of Heating and Ventilating Engineers**. *See also* **ENGINEERING, MECHANICAL**

ENGINEERING, ILLUMINATING (1) O-levels including English, Mathematics and Physics plus four or five years' apprenticeship with a firm of illuminating engineers and part-time study at a Technical College [4] for an O.N.C. and/or H.N.C. in Electrical or Mechanical Engineering followed by two years' practical experience in a lighting department and continued part-time study for the examinations in Illuminating Engineering of the **City and Guilds of London Institute**, which qualify in part for Diploma Membership of the **Illuminating Engineering Society**; or (2) a degree [1] or similar qualification [3, 4] in Electrical Engineering followed by experience in the industry. *See also* **ENGINEERING, ELECTRICAL**

ENGINEERING, MARINE Practical training should be done in a Marine Engine works and some scagoing experience should be gained if possible. Training for scagoing engineer officers in the Merchant Navy is as follows: 4 or 5 O-levels including English, Mathematics, Physics, and another Science subject plus (1) four years' apprenticeship in a suitable engineering works supplemented by part-time study at a Technical College [4] for an O.N.C. in Mechanical Engineering; or (2) a three-year full-time course at an approved Technical College [4] for O.N.C. and H.N.C. in Mechanical Engineering plus two years' practical engineering experience, followed in both cases by two sea-service periods of eighteen to twenty-one months each, to qualify for the Ministry of Transport's 2nd and 1st class Certificates of Competency; or (3) a two-year full-time course [4] for O.N.D. in Mechanical Engineering with additional practical training in vacations, plus eighteen months at sea as an apprentice engineer, followed by a year gaining engineering experi-

ence in a shipyard or marine-engine works and a further eighteen to twenty-one months at sea for the 1st Class Certificate of Competency.

Further information from the **Institute of Marine Engineers**. *See also* ENGINEERING, MECHANICAL; NAVAL ARCHITECTURE; ROYAL NAVY ENGINEERING, MECHANICAL [including PRODUCTION ENGINEERING] (1) 4 or 5 O-levels including English, Mathematics, and a Science subject plus five years' apprenticeship in an engineering works supplemented by part-time study at a Technical College [4] in preparation for the O.N.C. and/or H.N.C. in Mechanical Engineering or the professional examinations of the **Institution of Mechanical Engineers**; (2) a full-time course at a university [1], with practical training during vacations, for a degree in Mechanical Engineering, or at a Technical College [3, 4] (where it is also possible to take a four-year 'sandwich' course) for a Dip.Tech.(Eng.) or H.N.D. in Mechanical Engineering, plus two years' practical training as a graduate apprentice in an engineering works, supplemented by part-time study at a Technical College [4], or one year's training only if the degree [1] or diploma [3, 4] course has been preceded by a year's practical engineering experience.

ENGINEERING, MINING *Coal Mining*: (1) Four to six years' student apprenticeship with the National Coal Board; part-time study at a Technical College [4] for O.N.C. and/or H.N.C. in Mining or Electrical Engineering is combined with employment in a mine to qualify for the 1st Class Certificate of Competency of the Mining Qualifications Board (required for colliery management positions) and followed by either a year's full-time course or a three-year 'sandwich' course at a special college [4] for the National Diploma in Mining (further details from the **Institution of Mining Engineers**); (2) degree [1] or diploma [3, 4] in Mining Engineering, Fuel Technology, Mechanical/Electrical/Chemical Engineering followed by three years' practical training in a coal mine (part of which may be done during university/college vacations) to qualify for the 1st Class Certificate of Competency. *Metalliferous Mining*: (1) 4 O-levels including Mathematics and at least 1 Science subject plus part-time study [4] for the appropriate professional examinations and employment under the Official Learner Scheme operated by various mining companies in South Africa; (2) Chemistry at O-level, and Mathematics and Physics at A-level plus three or four years' full-time course at a university [1] or special mining school for a B.Sc.(Eng.) degree in Mining and/or associateship of the School, both of which qualify for admission to Corporate Membership of the **Institution of Mining and Metallurgy**. *See also* FUEL TECHNOLOGY; GEOLOGY; METALLURGY; SURVEYING, MINING

ENGINEERING, RADIO AND ELECTRONIC (1) 4 O-levels including Mathematics and Physics plus five years' apprenticeship in the industry or in a government establishment (details from the Departmental

Opportunities After O-level

Training Officer, Ministry of Aviation) with part-time study at a Technical College [4] for the appropriate technical or professional examination; (2) passes in Mathematics, Physics, and Chemistry at A-level plus a five-year student apprenticeship consisting of a four-year 'sandwich' course at a Technical College [3, 4] leading to a Dip.Tech. (Eng.) followed by a year's advanced practical training at an appropriate engineering works; (3) degree [1] (including external degree of the University of London at a Technical College [4]) in Electrical Engineering or Physics, or H.N.D. (or a college diploma or the examinations of a professional institution) in Electrical Engineering, supplemented in both cases by practical experience in the industry during vacations plus an additional two years' postgraduate training in the industry (or one year only if the degree [1] or diploma [3, 4] course has been preceded by a year's practical experience of Radio Engineering and/or Electronic Engineering). Further details from the **British Institution of Radio Engineers**. *See also* ENGINEERING, ELECTRICAL; PHYSICS

ENGINEERING, RAILWAY (1) 4 O-levels including English, Mathematics, and either two approved Science subjects or a Science subject and a foreign language, plus three to five years as a student engineer or an engineering apprentice with British Rail, combining employment and practical training with part-time study at a Technical College [3, 4] for the O.N.C. and/or H.N.C. or Diploma in Mechanical Engineering or Electrical Engineering and/or the professional examinations of the appropriate institution; (2) a degree or diploma in Civil/Mechanical/Electrical Engineering followed by two or three years' practical training in railway engineering with British Rail. Further details from the **Institution of Locomotive Engineers**. *See also* ENGINEERING, CIVIL/ELECTRICAL/MECHANICAL

ENGINEERING, WATER Water engineers are usually trained as civil engineers, except that the full-time degree [1] or diploma [3, 4] course may be preceded by one year's pre-entry practical training in the office of a civil engineer or in an engineering workshop, which eliminates the need for a final year's experience and part-time study to qualify for associate membership. Further details from the **Institution of Water Engineers**.

ENGINEERING, WELDING Welding technologists are trained as mechanical engineers or metallurgists but may take a year's full-time postgraduate course in welding technology at Cranfield College, Bedfordshire, for a Diploma in Advanced Engineering. Further details from the **Institute of Welding**. *See also* ENGINEERING, MECHANICAL; METALLURGY

ENTERTAINING - *see* DANCING; DRAMATIC ART; MUSIC

ENTOMOLOGY - *see* BIOLOGY

ESTATE AGENCY/MANAGEMENT - *see* AUCTIONEERING AND ESTATE AGENCY

EXHIBITION DESIGN - *see* **ARCHITECTURE; ART**

EXPORT TRADE 3 O-levels including English Language plus employment in the office of an export merchant or in the export department of a manufacturing concern with at least three years' part-time study at a Technical College or Commercial College [4] or by correspondence course [6] for the qualifying examinations of the **Institute of Export**.

FACTORY INSPECTORATE - *see* **CIVIL SERVICE** [*Administration*]

FAMILY CASEWORK A degree [1], diploma or certificate [1, 4] in a Social Science subject plus a further year's practical training through a recognized Applied Social Studies course. Further details from the **Association of General and Family Caseworkers**. *See also* **SOCIAL WORK**

FARMING - *see* **AGRICULTURE**

FASHION INDUSTRY - *see* **ART; CLOTHING INDUSTRY; DRESS DESIGN; TEXTILE TECHNOLOGY**

FILM INDUSTRY The industry employs men and women of varied qualifications - there is no recognized method of entry. There is a fifty-two-weeks' course provided by the **London School of Film Technique**, for which the minimum entry requirements are 5 O-levels. *See also* **ARCHITECTURE; ART; CLOTHING INDUSTRY; DESIGN; JOURNALISM; PHOTOGRAPHY; PUBLIC RELATIONS**

FINANCE - *see* **BANKING; STOCK EXCHANGE**

FINE ART - *see* **ART**

FLIGHT ENGINEERING; FLIGHT NAVIGATION; RADIO OPERATION AND FLYING INSTRUCTION - *see* **CIVIL AVIATION; ROYAL AIR FORCE**

FOOD MANUFACTURING INDUSTRY (1) O-levels plus employment in the industry combined with part-time study at technical college [3, 4] for the appropriate professional examinations, scientific, technical, or commercial according to branch of work chosen; (2) English, Mathematics, and a Science subject at O-level, 1 or 2 Science subjects at A-level (preferably Chemistry and Physics) plus a two-year full-time diploma course or a four-year associateship 'sandwich' course in Food Technology at the **National College of Food Technology**, or a four-year full-time associateship course in Food Science at the **Royal College of Science and Technology** in Glasgow; (3) degree [1] in Food Science or in a related science followed by a year's full-time post-graduate course in Food Technology, Food Microbiology, Food Quality Control, or Food Science at the University of Leeds [1] or one of the above-named colleges. Further details from the **Food Manufacturers' Federation**.

FOOD PROCESSING AND PRESERVATION; FOOD TECHNOLOGY - *see* **FOOD MANUFACTURING INDUSTRY, 2, 3.**

FOOD TRADE 3 or 4 O-levels including English and Mathematics plus

Opportunities After O-level

two or three years' apprenticeship or employment with a grocery firm and part-time study at a Technical College [4] for the professional examinations of the **Institute of Certified Grocers**.

FOREIGN OFFICE /SERVICE — see **CIVIL SERVICE**

FORESTRY *Ordinary Forester* [Forestry Commission]: 3 O-levels including English and Mathematics plus two years' practical experience in forestry work followed by a two-year full-time course at a Forestry Commission Training School for a Forester's Certificate. *Forest Officer* [Forestry Commission]: a degree in Forestry [1]; private foresters may also, while employed in forest work, train by part-time study for the Certificate or Diploma examinations of the **Royal Forestry Society** or of the **Royal Scottish Forestry Society**. Further details from the Education Branch **Forestry Commission**.

FUEL TECHNOLOGY (1) English Language, Mathematics, Chemistry, and Physics at O-level plus four or five years' student apprenticeship with a firm of chemical engineers or an organization concerned with the processing or utilization of fuel, with part-time study at a Technical College [4] for H.N.C. in Science or Engineering followed by an additional two years' supplementary part-time study in Fuel Technology [4]; (2) three- or four-year full-time course at a university [1] or a Technical College [3, 4] or a five-year 'sandwich' course at a Technical College for a degree, college associateship, Dip.Tech., or H.N.D. in Fuel Technology, Applied Chemistry, or Chemical Engineering with special reference to Fuel Technology; or similar qualifications in Chemical Electrical/Mechanical/Mining/Gas Engineering or allied science followed by one or two years' post-graduate study in Fuel Technology [1, 3, 4]. Candidates for associate membership of the **Institute of Fuel** must have had at least two years' practical training and one year's experience in a recognized branch of fuel technology in addition to their academic qualifications. See also **ENGINEERING, CHEMICAL**

GARDENING — see **HORTICULTURE**

GAS ENGINEERING — see **ENGINEERING, GAS; FUEL TECHNOLOGY**

GAS INDUSTRY — see **DEMONSTRATING; ENGINEERING, GAS; FUEL TECHNOLOGY**

GENETICS — see **BIOLOGY**

GEOLOGY A degree course [1] in Science, specializing in Geology. A few major Technical Colleges [4] also offer three-year full-time courses for the University of London B.Sc. external degree in Geology. Further details from the **Geological Society**.

GEOPHYSICS An honours degree [1] in Mathematics, Physics, or Geology followed by a one-year or two-year full-time course for the Diploma of Membership of the **Imperial College of Science and Technology** [1] or similar post-graduate training.

GLASS DECORATION/DESIGN/ENGRAVING - see ART

GLASS TECHNOLOGY (1) Four or five years' apprenticeship in a glass factory with either a three-year 'sandwich' course at St Helens Technical College, Lancashire [4] for H.N.D. in Applied Chemistry (Glass Technology) or part-time study at a Technical College [4] for an external B.Sc. degree of the University of London [1] or comparable qualifications; or (2) a three-year full-time course at the University of Sheffield [1] for a B.Sc. Tech. (Glass Technology) degree or diploma in Glass Technology, followed by two years' practical experience in a glass factory; or (3) a degree in Science [1] (preferably honours in Chemistry or Physics) or Engineering followed by specialized training in glass technology (such as a year's full-time course at the University of Sheffield [1] for a post-graduate diploma in Glass Technology) and two years' practical experience in a glass factory. Further details from the **Glass Manufacturers Federation**.

GROCERY AND PROVISIONS TRADE - see FOOD TRADE

GYMNASTICS - see PHYSICAL EDUCATION; REMEDIAL GYMNASTICS

GYNAECOLOGY - see MEDICINE

HAIRDRESSING Knowledge of English, Physics, and Chemistry an advantage. Sixteen minimum age for admission to School of Hairdressing. Training by (1) three-year apprenticeship to an established hairdresser, and part-time study for the City and Guilds Examination in Hairdressing; or (2) two or three years' full-time at a School of Hairdressing recognized by the L.E.A.; or (3) course at a private school of Hairdressing. Examinations held by (a) **The City and Guilds of London Institute**; (b) **The Hairdressers' Registration Council**.

HANDICRAFT TEACHING - see TEACHING

HEALTH VISITING The four-year or five-year training required of Health Visitors consists of three years' nursing training in a hospital for State Registration (4 O-levels are generally stipulated) followed by six months' training for Part I of the Certificate of the Central Midwives Board, and a final year's full-time course for the Health Visitor's Examination of the **Royal Society of Health** or the **Royal Sanitary Association of Scotland**. Further details from the R.S.H. *See also* **NURSING**.

HEATING ENGINEERING - see ENGINEERING, HEATING/MECHANICAL

HIGHWAY ENGINEERING - see ENGINEERING, CIVIL

H.M. FORCES - see ARMY; ROYAL AIR FORCE; ROYAL MARINES; ROYAL NAVY

HOME OFFICE - see CIVIL SERVICE

HOROCLOGY - see SCIENTIFIC INSTRUMENT MAKING

HORTICULTURE *Market Gardening, Supervisory Posts*: (1) 2 O-levels including English, and a years' full-time course at farm, institute [5] or

Opportunities After O-level

Technical College [4] for the institute's certificate or a National Certificate in Horticulture of the Royal Horticultural Society; or (2) a five-year apprenticeship under the Parks and Gardens Apprenticeship Scheme (England and Wales) and part-time study at a Technical College [4] for a Diploma in Park Administration or the examination of the **City and Guilds of London Institute**. *Managers and Superintendents in the Parks Departments of Local Authorities, Advisory Officers, Inspectors, Lecturers:* 5 O-levels including English and Mathematics or a Science subject plus a two-year full-time course at an Agricultural College [5] or a Horticultural College [5] for a college diploma and/or National Diploma in Horticulture. For the latter diploma six years' practical experience of gardening are required, inclusive of college training. *Teaching, Research Posts:* A three-year to five-year full-time course at a university [1] for a B.Sc. (Hort.) degree or an honours degree in Science [1] and a post-graduate diploma in horticulture [4] (in all cases a year's practical experience of gardening is considered desirable prior to college training.) Further details from the **Royal Horticultural Society**.

HOSPITAL ADMINISTRATION [*Professional Status*] 5 O-levels including English Language, Mathematics, or an approved Science subject and 2 other approved subjects plus employment in the administrative department of a hospital combined with part-time study for the Diploma of the **Institute of Hospital Administrators**, or **Institute of Municipal Treasurers and Accountants**. Graduates or other suitably qualified candidates may enter the profession under a national training scheme which provides them with two years' theoretical and practical training, with pay, followed by periods of practical experience in responsible posts. Entry under this scheme is limited.

HOTEL INDUSTRY—see **CATERING AND HOTEL INDUSTRY**

HOUSING MANAGEMENT 5 O-levels including English Language and Mathematics plus (1) two or three years' junior employment in the Housing Department of a Local Authority or the office of a housing association, supplemented by part-time study for the Housing Managers' Certificate examination of the **Royal Institution of Chartered Surveyors**, or the associateship examination of the **Institute of Housing**; or (2) a two-year or three-year full-time course at an approved Technical College [4] for the 1st and Intermediate professional examinations (Housing Management Section) of the R.I.C.S. followed by two years' practical experience in a Housing Office combined with part-time study for the final R.I.C.S. examination; or (3) a degree in Estate Management or Social Science [1] followed by one or two years' practical experience in a Housing Office.

HYDROGRAPHIC SURVEYING—see **SURVEYING, HYDROGRAPHIC**

ILLUMINATING ENGINEERING—see **ENGINEERING, ELECTRICAL/ILLUMINATING**

INCORPORATED SECRETARY - *see* SECRETARIAL WORK

INDUSTRIAL DESIGN [*Training in art and design and practice in industry*] - *see* ART

INDUSTRIAL MANAGEMENT - *see* INDUSTRY AND COMMERCE, 3

INDUSTRIAL PSYCHOLOGY - *see* PSYCHOLOGY

INDUSTRY AND COMMERCE [*Managerial and Executive positions*] (1) 3 O-levels including English and 2 other approved subjects plus employment or a four year apprenticeship in an industrial or commercial office and study for ONC (two years part-time) or OND [4] (three-year sandwich course) in Business Studies or other appropriate subject, (2) 5 O levels including English and 1 or 2 appropriate subjects at A level plus two years full time study [4] for HND in Business Studies or other suitable professional qualifications or employment as in (1) above and part time study for OND or HND or external degree of the University of London [1], (3) a degree [1] Diploma [3, 4], HND [4] approved HNC [4] or similar approved professional qualifications (or educational requirements - *see e.g.* ACCOUNTANCY, ECONOMICS, ENGINEERING, LAW) followed by employment as an executive trainee in an industrial or commercial office and additional study for a Diploma in Management Studies [4] or other advanced management qualification. Further details from the **British Association for Commercial and Industrial Education (BACIE)**

INFORMATION OFFICER WORK - *see* LIBRARIANSHIP

INSTITUTIONAL MANAGEMENT - *see* CATERING AND HOTEL INDUSTRY

INSTRUMENT MAKING - *see* MUSICAL INSTRUMENT TECHNOLOGY, SCIENTIFIC INSTRUMENT MAKING

INSURANCE 4 or 5 O levels including English and Mathematics plus employment as a junior clerk with an insurance company combined with two or three year part time study in evening classes at a Commercial College [4] or by a correspondence course [6] for the Associateship Diploma of the **Chartered Insurance Institute**. *See also* ACTUARIAL WORK

INTERIOR DESIGN DECORATION (1) English, Mathematics, and Art O levels plus a five year apprenticeship with a firm of interior decorators or designers supplemented by part time study at a School of Art [5] or a Technical College [4] for the examinations of the **Incorporated Institute of British Decorators and Interior Designers** and/or the National Diploma of Design in Interior Design or in Painting and Decorating and Signwriting. (2) 5 GCSE subjects at O level plus a three-year or four year full time course at a School of Architecture [5], Art, or Building [5] in preparation for the examinations as listed above or the Diploma in Art and Design, plus a further training with a firm of interior decorators or designers. *See also* ARCHITECTURE, ART

Opportunities After O-level

IRON AND STEEL INDUSTRY (1) 5 appropriate O-levels plus employment as a technical trainee in the iron and steel industry combined with part-time study at a Technical College [4] for professional qualifications, usually a Metallurgical or Engineering Technicians' Certificate of the **City and Guilds of London Institute**; (2) a student apprenticeship with an iron and steel company providing either a full-time degree [1] course with practical training in the industry during vacations, or a 'sandwich' course at a Technical College [3, 4] leading to a diploma in Technology; (3) a degree [1] or similar qualification [3, 4] in a Science or Arts subject plus one and a half or two years' practical training in the industry as a graduate trainee for technical administrative position. Further details from the Training Department, **British Iron and Steel Federation**. See also **ENGINEERING; METALLURGY**

JOURNALISM No formal educational qualifications are necessary, but passes in at least 3 O-levels including English Language and English Literature are preferred. The most usual method of training for journalism is under the five-year scheme administered by the **National Council for the Training of Journalists**, which consists of (a) a six months' probation period; (b) a three-year articulated apprenticeship (two years for a graduate) generally with a provincial or suburban newspaper and combined with part-time study [4, 5] for the Council's Certificate of Proficiency; (c) one and a half years' part-time study for the National Diploma in Journalism.

LABORATORY TECHNOLOGY - see **MEDICAL LABORATORY TECHNOLOGY; SCIENTIFIC LABORATORY TECHNOLOGY**

LAND AGENCY (1) 5 O-levels including English and Mathematics plus four years' work as an articulated pupil in a qualified Land Agent's office with part-time study [4] for the professional examinations of the **Royal Institution of Chartered Surveyors**, the **Chartered Land Agents Society**, or the **Chartered Auctioneers and Estate Agents Institute**; (2) a full-time course in Estate Management at the University of London [1] for a B.Sc. degree or at the **Royal Agricultural College** at Cirencester for the Diploma in Estate Management or at the **College of Estate Management** in London for the professional examinations, followed in all cases by two years' practical training in a qualified Land Agent's office; six to twelve months' practical experience of working on a farm or at a farm institute is considered a desirable addition to training by both methods (1) and (2). See also **AUCTIONEERING AND ESTATE MANAGEMENT; SURVEYING, BUILDING/QUANTITY/VALUATION**

LANDSCAPE ARCHITECTURE (1) 2 O-levels including English plus a year's employment in a public park, botanic garden, or commercial establishment followed by a year's full-time course at a Farm Institute [5] or Technical College [4] for the institute's certificate or a National Certificate in Horticulture of the **Royal Horticultural Society**, and a

period of practical training as an assistant or pupil in the office of a landscape architect combined with part-time study for the professional examinations of the **Institute of Landscape Architects**; (2) English, Mathematics, Chemistry, and Biology O-levels plus a two-year full-time course in Horticulture (see **HORTICULTURE**, 2) followed by employment in the office of a landscape architect and two or three years' part-time study in Landscape Design at a School of Architecture or School of Planning; (3) university entrance requirements [1] plus a three-year full-time course in Landscape Design at Cheltenham School of Architecture supplemented by Horticultural Studies, or three or four years for a degree [1] in Horticulture or an allied subject followed by a year's full-time diploma course in Landscape Architecture at the University of Durham [1]. Further details from the I.L.A. See also **HORTICULTURE**

LAND SURVEYING - see **SURVEYING, LAND**

LAUNDRY MANAGEMENT Chemistry or Physics and English at O-level plus a three-month full-time course in Laundry Technology at the **School of Laundry** in London, and experience in the industry. Further details from the **Institute of British Launderers**.

LAW - see **BARRISTER; SOLICITOR**

LEATHER INDUSTRY [*Managerial and Technical Positions*] (1) 4 O-levels including English, Chemistry, and Physics plus a three-year full-time diploma course [4] or a four-year full-time college associateship course at the **National Leathersellers College**; or (2) a degree [1] followed by a year's full-time diploma or associateship course at the N.L.C. or a full-time course at the University of Leeds [1] for a degree in the science of leather manufacture.

LEGAL PROFESSION - see **BARRISTER; SOLICITOR**

LIBRARIANSHIP (1) 5 O-levels including English Language and a foreign language or Science, and 2 A-levels plus one or two years' junior employment in a library followed by a two-year full-time course (one year for graduates) at a School of Librarianship (details from the **Association of Special Libraries and Information Bureaux, A.S.L.I.B.**), leading to the final examinations of the **Library Association**; or (2) an honours degree [1] course at a university plus a year's full-time course (or three years if part-time) at the **London School of Librarianship and Archives** for the University of London [1] **Diploma in Librarianship**, which grants exemption from the Library Association's final examinations; followed in both (1) and (2) by a further period of full-time employment in an approved library to make a total of three years' practical experience, of which one must have come after academic training, in order to qualify for election to the Register of Chartered Librarians as Associates of the Library Association. Prospective Information Officers should preferably obtain a degree [1] or technical qualifications [3, 4]

Opportunities After O-level

plus qualifying as Chartered Librarians before taking a two-year part-time course [4] for the examinations of the **Institute of Information Scientists**.

LIGHTING ENGINEERING - see **ENGINEERING, ELECTRICAL/ILLUMINATING**

LOCAL GOVERNMENT SERVICE The minimum qualifications for promotion within the General Division of the Local Government Service are 3 O-levels including English and a foreign language or Science subject. Thereafter promotion from General to Clerical, and Clerical to Administrative, Professional, and Technical Divisions is by examinations set by the **Local Government Examinations Board** (except in Scotland, where promotion is by merit). All junior Local Government employees are required to attend part-time courses [4] approved by the employing Authority in general educational subjects and principles of local government and public administration, or to study for full professional or technical qualifications which may exempt them from the internal examination of the Local Government Examinations Board. A candidate with a degree [1], technical [3, 4], or professional [4] qualifications or a Diploma in Public Administration provided by the N.A.L.G.O. Correspondence Institute [6] (usually obtained after a three-year part-time course) may be appointed direct to the Administrative, Professional, and Technical Division. Further details from the **National Joint Council for Local Authorities**. See also **ARCHITECTURE; CHILD CARE; DENTISTRY; ENGINEERING; HEALTH VISITING; MEDICINE; NURSING; PUBLIC CLEANSING; SURVEYING; TOWN PLANNING**

MANAGEMENT - see **INDUSTRY AND COMMERCE; SALESMANSHIP AND SALES MANAGEMENT**

MARINE ENGINEERING - see **ENGINEERING, MARINE/MECHANICAL; MERCHANT NAVY; NAVAL ARCHITECTURE; ROYAL NAVY**

MARKET GARDENING - see **HORTICULTURE**

MARKET RESEARCH *Research Assistant*: G.C.E. including Mathematics A-level or a Registered Statistical Assistant's Certificate. *Research Officer*: experience as a Research Assistant in a market research agency or market research department of an industrial or commercial firm or a degree [1] or similar qualification in Economics, Statistics, Sociology, or Psychology. Further details from the **Market Research Society**. See also **COMPUTER WORK; STATISTICAL WORK**

MATHEMATICS Full-time study at a university [1] or technical college [3, 4] for an honours degree or Dip.Tech. in Mathematics. Further details from the **Mathematical Association**. See also **ACTUARIAL WORK; ASTRONOMY; ATOMIC ENERGY; CIVIL SERVICE; COMPUTER WORK; ENGINEERING; METEOROLOGY; PHYSICS; STATISTICS**

MEAT TRADE—see **FOOD MANUFACTURING INDUSTRY**

MECHANICAL ENGINEERING—see **ENGINEERING, MECHANICAL**

MEDICAL LABORATORY TECHNOLOGY 4 O-levels including English Language, Mathematics, and a Science subject plus five years' employment and practical training in a hospital or laboratory recognized by the **Institute of Medical Laboratory Technology**, combined with part-time study at a Technical College [4] for the I.M.L.T. professional examinations, success in which qualifies the candidate for associate membership.

MEDICAL PHOTOGRAPHY English, Physics, Chemistry, Biology, and Mathematics O-levels plus two years' part-time or full-time study at a Technical College [4] or School of Photography for the examinations in General Photography of the **Institute of British Photographers**, followed by a fifteen-month full-time course at the **London School of Medical Photography**, or two years' part-time study at a Technical College [4] and employment in a hospital department, to qualify for I.B.P. associate membership and inclusion in the Register of Medical Photographers.

MEDICINE Five to seven years' full-time study and clinical training at a university [1] or medical school [1] for a degree and/or diploma in Medicine, Surgery, and Midwifery, followed by a year's employment as a Resident House Officer in an approved hospital or institution, to qualify for admission to the Medical Register of the General Medical Council; five or six years' further study for a higher degree or diploma, and employment in a hospital as a Senior House Officer and then Registrar, are required of aspiring specialists, consultants, and academics. Further details from the **British Medical Association**.

MENTAL HEALTH/WELFARE—see **PSYCHOLOGY; SOCIAL WORK**

MERCHANT NAVY *Navigating Officer*: (1) 4 O-levels including English Language and Mathematics plus four years' sea service as a cadet or apprentice to a firm of shipowners (three or three and a half years for boys who have attended a Nautical Training School or cadet course at a Technical School) to qualify for the 1st Certificate of Competency issued by the Ministry of Transport, or (2) 5 G.C.E. subjects including 2 A-levels of which one is Mathematics or Physics plus two and a half or three years' sea service as above. *Radio Officer*: Mathematics, Physics, and English O-levels are desirable, plus an eight-month to two-year full-time course at a Radio School or Technical College [4] for the 1st or 2nd class Certificate of Competency in Radio and Telegraphy issued by the Postmaster-General. Further information from the **Ministry of Transport** and the **Shipping Federation**. *Engineering Officer*—see **ENGINEERING, MARINE**. *Pursers* and *Stewards*: most are chosen from boys engaged as clerks in company offices and ports. Occasionally advertised. O-levels in Mathematics and English and 1 or 2 foreign

Opportunities After O-level

languages. Some knowledge of typing and book-keeping is valuable. *Stewardesses*: a good standard of education. Ability to deal with different types of people. (Shorthand typing is needed for lady pursers.) *Nursery Stewardesses* and *Nursing Sisters* are required to have appropriate qualifications, diploma of the **National Nursery Examination Board**, and S.R.N. See **NURSERY NURSING**; **NURSING**. For further information, write to the City officers of the company you choose.

METALLIFEROUS MINING – see **ENGINEERING MINING**; **GEOLOGY**; **METALLURGY**; **SURVEYING**, **MINE**

METALLURGY (1) Physics, Chemistry, Mathematics, and English Language O-levels desirable, plus five years' technical apprenticeship in a metallurgical works supplemented by part-time study at a Technical College [4] for O.N.C. and H.N.C. in Metallurgy or the Metallurgical Technicians Certificate of the **City and Guilds of London Institute**; (2) an honours degree [1] in Metallurgy or Physics supplemented by experience in a metallurgical works during vacations and followed by one or two years' further practical experience and approved employment, to qualify for associate membership of the **Institution of Metallurgists** or a three-year to five-year full-time or 'sandwich' course at a Technical College [3, 4] for a B.Sc., an external degree of the University of London in Engineering (Metallurgical) [1], a Dip.Tech. or H.N.D. in Metallurgy, or the I.M. professional qualifications plus additional practical works experience as above.

METEOROLOGY The Meteorological Office is run by the Civil Service (Scientific Branch); entry requirements are as follows: *Experimental Assistant*: 4 O-levels including English Language, and a Science subject (preferably Physics or Mathematics). *Experimental Officer*: 5 O-levels including English and 2 mathematics or Science subjects at A-level. *Scientific Officer*: a good honours degree [1] or equivalent qualification in Mathematics or Physics [1]. All necessary practical training is provided by the Civil Service at the Meteorological Office Training School. Further details from the Secretary (MO10) **Meteorological Office**. See also **CIVIL SERVICE**

MICROBIOLOGY – see **BIOLOGY**

MIDWIFERY (1) Three or four years' full-time training as a State Registered Nurse in a hospital or similar establishment plus a one-year full-time training course at an institution approved by the **Central Midwives Board**, for admission to the Board's Roll of Midwives; (2) two or three years' training as a Chartered Physiotherapist or two years' nursing training in a training hospital for State Enrolment or specialized nursing qualifications plus a one-and-a-half-year course in Midwifery as above (for those with no prior qualifications (minimum age 20) the course in Midwifery takes two years). See also **MEDICINE**; **NURSING**; **PHYSIOTHERAPY**

MINING ENGINEERING — *see* **ENGINEERING, MINING**

MINING SURVEYING — *see* **SURVEYING, MINING**

MORAL WELFARE WORK Preliminary qualifications in a related field are desirable, plus one to three years' full-time training at the Josephine Butler Memorial House, Liverpool; the three-year course includes the Social Science Course at the University of Liverpool [1]. Further details from the **Association of Psychiatric Social Workers**. *See also* **CHILD CARE; CHURCH MINISTRY; FAMILY CASEWORK; PROBATION OFFICER; SOCIAL WORK**

MUNICIPAL ENGINEERING — *see* **ENGINEERING, CIVIL**

MUSEUM WORK (1) *Junior grades* [Attendants, Assistant Curators, etc.]: good G.C.E. O-level in appropriate subjects essential. (2) *Senior grades* [Assistant Keepers, etc.]: an honours degree [1] in an appropriate subject preferably followed by some research experience and/or two or three years' employment and training in a museum combined with study for the diploma of the **Museum Association**, which qualifies for associate membership. Candidates for the diploma need not have a degree so long as they have 5 G.C.E. subjects including 2 at A-level and are employed in museum work, but a degree or equivalent qualification is considered highly desirable.

MUSIC (1) 5 O-levels and as a rule training since childhood in piano-playing, singing, and/or performance on another musical instrument plus three years' full-time study at a College of Music or Academy of Music [5] for its diploma, followed by one to three years' further study and practice for aspiring teachers [2] and also solo performers; (2) a degree in Music [1], which in some cases can be combined with a more practical course at a College of Music [5] for a graduate diploma. Further details in *Choice of Careers* pamphlet 101, *Music*.

MUSICAL INSTRUMENT TECHNOLOGY Appropriate O-levels are desirable, plus five years' indentured apprenticeship to a firm of musical-instrument manufacturers supplemented by part-time study at a Technical College [4] for the graduateship Examination of the **Institute of Musical Instrument Technology**.

MYCOLOGY — *see* **BIOLOGY**

NAVAL ARCHITECTURE (1) Five years' apprenticeship or pupilage to a ship-building firm combined with part-time study at a Technical College [4] for O.N.C. and H.N.C. in Naval Architecture; or (2) a three-year or four-year full-time or 'sandwich' course at a university [1] or Technical College [3, 4] for a degree or diploma in Naval Architecture, combined with practical training in a shipbuilding or marine-engineering works during vacations and followed by a further two or three years' practical experience and employment after graduation (apprentices training on the 'sandwich' system may count their four years' academic training as part of their five or six years' apprenticeship); or (3) *English*

Opportunities After O-level

Language and a foreign language O-levels and Pure Mathematics, Applied Mathematics, and Physics A-levels plus five years' theoretical and practical training at the **Royal Naval Engineering College, Plymouth**, and the **Royal Naval College, Greenwich**, leading to the rank of Constructor Lieutenant in the Royal Corps of Naval Constructors. Apprentices from private shipyards who have been engaged in practical shipbuilding work for at least eighteen months, graduates in Naval Architecture with similar practical experience, and honours graduates in Mechanical Science or Engineering are also eligible for entry into the Royal Corps of Naval Constructors as Constructor Lieutenants, after completing a three-year training course at a Royal Naval College. Further details from the **Royal Institute of Naval Architects**. See also **ENGINEERING, MARINE; ROYAL NAVY**

NAVIGATION - see **CIVIL AVIATION; MERCHANT NAVY; ROYAL AIR FORCE; ROYAL NAVY**

NAVY - see **MERCHANT NAVY; ROYAL NAVY**

NEUROLOGY - see **MEDICINE**

NURSERY GARDENING - see **HORTICULTURE**

NURSERY NURSING A good education up to G.C.E. standard plus two years' free training at a Local Authority or Voluntary Society School (e.g. Dr Barnardo's or the Church of England Children's Society) or one-and-a-half or two years' residential training at an Association of Nursery Training College (list available from the Association of the **Royal Society of Health**), in preparation for the Certificate of the **National Nursery Examination Board** and/or the Diploma of Nursery Nursing of the R.S.H.

NURSING 2 O-levels including English Language plus a three-year or four-year full-time residential nursing course at a hospital combining practical with theoretical training, leading to State Registration as a qualified nurse. Those without G.C.E. qualifications may take a simpler two-year State Enrolment course in General Nursing or one of the two-year specialist courses (in e.g. tuberculosis, orthopaedic nursing, ophthalmic nursing) run by non-statutory bodies outside the scope of the **General Nursing Council**. See also **HEALTH VISITING; MIDWIFERY; PHYSIOTHERAPY**

NUTRITION - see **CATERING AND HOTEL INDUSTRY; DIETETICS; DOMESTIC SCIENCE; FOOD MANUFACTURING INDUSTRY**

OBSTETRICS - see **MEDICINE; MIDWIFERY**

OCCUPATIONAL PSYCHOLOGY - see **PSYCHOLOGY**

OCCUPATIONAL THERAPY 5 O-levels preferably including English, a Science subject, and an Arts subject plus three years' full-time training at a recognized school (list obtainable from the **Association of Occupational Therapists**), leading to the A.O.C. Diploma. The principal training centres are the Derby School of Occupational Therapy, 403

- Burton Road, Derby; St Loye's School of Occupational Therapy, Millbrook House, Topsham Road, Exeter, Devonshire; College of Occupational Therapy Ltd, Victoria Road, Huyton, near Liverpool, Lancashire; Occupational Therapy Centre and Training School, 12-14 Merton Rise, London NW3; St Andrew's Hospital, Northampton; Dorset House School of Occupational Therapy Ltd, Churchill Hospital, Oxford; Astley Ainslie Hospital, Grange Loan, Edinburgh, Scotland; School of Occupational Therapy, 29 Sherbrooke Avenue, Glasgow S1, Scotland; School of Occupational Therapy, Botley's Park Hospital, Chertsey, Surrey; School of Occupational Therapy, Military Hospital, York.

OFFICE MANAGEMENT - see INDUSTRY AND COMMERCE

OIL INDUSTRY The oil industry employs men and women with honours degrees [1] or equivalent professional qualifications [3, 4] in Agriculture, Chemistry, Engineering, Fuel Technology, Geology, Geophysics, Applied Mathematics, Pure Mathematics, and Surveying (for details see under these headings). Arts graduates [1] may also be employed in marketing and commercial departments, and qualified engineering officers (see ENGINEERING, MARINE) and navigating officers (see MERCHANT NAVY) in Marine Transport Departments. Graduate recruits are given at least a year's practical training in the industry. There are apprenticeship schemes lasting two to five years for school-leavers with the following qualifications. *Commercial Departments*: 3 O-levels including English and Mathematics. *Marine Transport*: 4 O-levels including English, Mathematics, and a Science subject (Navigating Officer) or Physics (Engineering Officer). *Industrial and Technical Departments*: English Language O-level and Mathematics, Physics, and Chemistry A-levels. There are also apprenticeships for university entrants [1] in appropriate subjects. All apprentices are expected to follow full-time or part-time courses of study for suitable professional qualifications. Further details in the *Oil and Petroleum Year Book* and other Trade Directories (which can be found in most public libraries).

OPHTHALMOLOGY - see MEDICINE

OPTICIAN, DISPENSING Mathematics and Physics, and a Science subject or English O-levels plus (1) four years' employment and practical training under an approved optician supplemented by part-time study at a Technical College [4] for the fellowship examinations of the **Association of Dispensing Opticians**; or (2) a one-year full-time course for a Dispensing Certificate of the **British Optical Association** or of the **Worshipful Company of Spectacle Makers**, followed by a year or more of approved employment and practical training; or (3) a two-year full-time course at a recognized training institution for the A.D.O. fellowship examinations followed by a year's approved employment and practical training as above. Any of the above qualifications entitle the

Opportunities After O-level

candidate to registration by the **General Optical Council** provided he is twenty-one and has had an appropriate period of practical experience. **OPTICIAN, OPHTHALMIC** 5 O-levels including English Language and a Science subject (a different science from those taken at A-level) and a foreign language (for the examinations of the **British Optical Association**) plus Physics and another Science subject at A-level plus three years' full-time or four years' part-time and a final year's full-time training at a recognized college (list obtainable from the **Association of Dispensing Opticians**) followed by a year's employment and clinical training under a qualified optician, leading to the fellowship examinations of one of the four professional optical bodies and registration by the **General Optical Council**.

ORTHOPAEDICS — see **MEDICINE**

ORTHOPTICS 5 O-levels including English, and if possible Mathematics and/or Physics and/or Biology (an A-level is an advantage) plus a two-and-a-quarter-year full-time non-residential course at a hospital for the diploma of the **British Orthoptics Board**. Aspiring teachers of orthoptics are required to have a further three years' clinical experience and study before taking the Board's teacher's examination.

OSTEOPATHY Chemistry and Physics O-levels plus a four-year full-time course at the **British School of Osteopathy** for a Diploma in Osteopathy and registration on the Register of Osteopaths. The **London College of Osteopathy** (the only other osteopathic training school in Great Britain) is for registered medical practitioners only. *See also* **MEDICINE**

PAINT TECHNOLOGY Mathematics, Physics, and Chemistry O-levels plus five years' apprenticeship with a paint-manufacturing firm and part-time study at a Technical College [4] for appropriate professional qualifications such as the Paint Technologist's Certificate of the **City and Guilds of London Institute** or a H.N.C. in Chemistry. The paint industry also employs qualified chemists in the higher grades (*see* **CHEMISTRY**). Further details from the **Paint Apprenticeship Council**.

PARK ADMINISTRATION — see **HORTICULTURE; LANDSCAPE ARCHITECTURE**

PATENT AGENCY (1) 5 O-levels including English Language, Mathematics, and a foreign language (preferably French, German, or Russian) and Physics or Chemistry at A-level plus five years' employment and practical training in the office of a patent agent as a junior technical assistant combined with part-time study [1, 4, 6] for appropriate scientific qualifications and the professional examinations of the **Chartered Institute of Patent Agents**, to gain admission to the Register of Patent Agents; or (2) a degree [1] or diploma [3, 4] in Science or Engineering plus three years' employment and practical training in a patent

- **agent's office as an articled pupil or technical assistant with part-time study for the C.I.P.A. professional examinations.**

PATENT EXAMINER [*Civil Service, Scientific Branch*] 1st and 2nd class honours degree [1] or Dip.Tech. [3, 4] in Physics, Chemistry, Mathematics, Electrical Engineering, Mechanical Engineering, or equivalent professional qualification [4]. Further details from the **Patent Office**. *See also* **CIVIL SERVICE** [*Administrative*].

PATHOLOGY — *see* **MEDICINE**

PERSONNEL MANAGEMENT Some years' industrial experience or a three-year or four-year full-time course at a university [1] or Technical College [3, 4] for a degree or diploma in Economics, Commerce, History, or Social Science, followed by a period of employment and practical training in industry plus (on the employer's recommendation) a year's full-time university course in Personnel Management (St Andrews, Cardiff, Strathclyde, L.S.E. [1], Manchester College of Technology [4], Bristol College of Science and Technology [3]) for a college diploma or for the professional examinations of the **Institute of Personnel Management** or for the Diploma in Public and Social Administration of the University of Oxford **Delegacy for Social Training**, or a two-year full-time course for the Diploma in Industrial Sociology of the University of Liverpool [1]. All these diplomas qualify for graduate membership of the I.P.M. as does the Diploma in Management Studies. *See also* **INDUSTRY AND COMMERCE**

PETROLEUM INDUSTRY — *see* **OIL INDUSTRY**

PHARMACOLOGY — *see* **BIOLOGY**

PHARMACY (1) Chemistry, Biology, or Botany, and Physics (or Zoology, or Mathematics) A-levels plus a three-year full-time course at an approved college (list available from the **Society of Apothecaries**) for the Pharmaceutical Chemist's Diploma of the **Pharmaceutical Society**; or (2) at least one year's practical training in an approved pharmacy, hospital, pharmaceutical department, or a pharmaceutical manufacturing laboratory, to qualify for registration as a pharmacist. Further details from the P.S. *See also* **DISPENSING**

PHOTOGRAPHY 4 O-levels including English Language or English Literature, plus (1) four or five years' employment and practical training with a qualified photographer as a junior assistant and part-time study [4] for the professional examinations of the **Institute of British Photographers** or the **City and Guilds of London Institute**; or (2) a three-year full-time course at an Art School [5] or School of Photography (list available from the I.B.P.) for the I.B.P. final examinations or their equivalent, which qualify for I.B.P. associate membership; or (3) a two-year full-time course as above for the I.B.P. intermediate examination followed by employment and specialized training (in the scientific or industrial field, for example) supplemented by part-time study at an

Opportunities After O-level

evening class [4] for the I.B.P. final examinations. Candidates for the School of Photography of the Regent Street Polytechnic, London (whose three-year diploma course gives exemption from the I.B.P. final examinations) should have passes in 5 G.C.E. subjects including English Language and Mathematics at O-level and one at A-level. *See also* MEDICAL PHOTOGRAPHY; PRESS PHOTOGRAPHY

PHYSICAL EDUCATION *Men and women:* full-time study at the University of Birmingham for a B.A. honours degree in combined studies [1]. The University of Bristol also has a four-year part-time course for students reading for a degree who wish to offer Physical Education as one of their teaching subjects [4]. *Men:* most Physical Education courses for men are restricted to those who have already qualified as teachers in other subjects, except at the Scottish College of Physical Education where a three-year full-time course is available [2]. *Women:* 5 O-levels plus a three-year full-time course at a College of Physical Education [2] or at a general College of Education with a Physical Education wing [2] or a two-year general teaching course followed by a year's supplementary course in Physical Education [2], leading in all cases to a Certificate of the Institute of Education. Further details from the **Physical Education Association**. *See also* REMEDIAL GYMNASTICS; TEACHING

PHYSICS (1) 4 or 5 O-levels including English, Mathematics, and Physics are desirable plus junior employment in the laboratories of an industrial organization supplemented by three to five years' part-time study at an approved Technical College [4] for O.N.C. and I.N.C. in Applied Physics and/or the graduateship examination of the **Institute of Physics** and the **Physical Society**; or (2) full-time study or a 'sandwich' course at a university [1] or approved Technical College [3, 4] for an honours degree or Dip.Tech. in Physics, or the I.P. and P.S. graduateship examinations. *See also* ATOMIC ENERGY; METALLURGY; METEOROLOGY

PHYSIOTHERAPY 5 O-levels including English Language and a Science subject plus a three-year full-time course combining theoretical and practical work at a school recognized by the **Chartered Society of Physiotherapy** (list available from the C.S.P.) or, in Scotland, the **Faculty of Physiotherapists**, leading to a Certificate of Membership of the Society or the Faculty.

PILOTS—*see* CIVIL AVIATION; MERCHANT NAVY; ROYAL AIR FORCE; ROYAL NAVY

PLASTICS TECHNOLOGY (1) English Language, Mathematics, Physics, and Chemistry O-levels plus junior employment in the works or laboratory of a plastics firm combined with three to five years' part-time study at a Technical College [4] for the examinations in Technology of **Plastics of the City and Guilds of London Institute** or the O.N.C.

and/or H.N.C. in Chemistry, Physics, or Engineering, leading to the Diploma of the **Plastics Institute** with further study to membership of an appropriate professional body; (2) English Language, a Science subject, and an approved cultural subject O-levels and Chemistry and Physics or Mathematics A-levels plus a three-year or four-year 'sandwich' or full-time course at a Technical College [3, 4] for a Dip.Tech. in Science or Engineering, or membership of an appropriate professional body, followed by practical experience in the plastics industry and further study, leading to P.I. associateship; (3) a degree [1] in Science or Engineering followed by practical experience in the industry and further study as above. *See also* CHEMISTRY; ENGINEERING, CHEMICAL/ELECTRICAL/MECHANICAL; PHYSICS; RUBBER TECHNOLOGY

POLICE SERVICE There are no formal educational requirements for entry. Candidates must satisfy the health and height requirements, be of British nationality and aged at least nineteen (men) or twenty (women), and pass an entrance examination. New recruits serve two years on probation as constables, during which time they are given three months basic training at a residential District Training Centre and two further short continuation training courses. Promotion within the service is by qualifying examinations in Police Duties and in general education subjects. Recruits may go in for specialized police work such as criminal investigation (C.I.D.) after serving their two years' general probation. Further details from the **Police Recruiting Department**.

POST OFFICE ENGINEERING - *see* CIVIL SERVICE; ENGINEERING, ELECTRICAL

POST OFFICE WORK - *see* CIVIL SERVICE

POTTERY - *see* CERAMICS

POULTRY HUSBANDRY - *see* AGRICULTURE

PRESS PHOTOGRAPHY The **National Council for the Training of Journalists** administers a five-year apprenticeship scheme for aspiring press photographers with 4 O-levels including English: (a) a six-month probation period plus (b) three years' practical training supplemented by general and technical studies on a part-time basis at a Technical College [4] for the Council's Certificate of Training and for the **Institute of British Photographers** intermediate examination plus (c) one-and-a-half years' specialized work and part-time study under the National Apprenticeship Scheme for the N.C.T.J. National Diploma in Photography and the I.B.P. final examinations. *See also* JOURNALISM; PHOTOGRAPHY

PRINTING INDUSTRY *Technologists*: no formal educational requirements; five or six years' apprenticeship to a printer with part-time study at a Technical College [4] for the appropriate examinations of the **City and Guilds of London Institute**, culminating if desired in a **Full Technological Certificate in Printing**. *Managers*: training as above and

Opportunities After O-level

part-time study [4, 5] for the appropriate examinations, or, for candidates with 5 O-levels including English Language and a Science or Arts subject, a three-year full-time course at the London College of Printing (or at one of a few other Technical Colleges [4] with similar courses) for a Diploma in Printing Administration. *Designers*: 3 O-levels including English Language and Art plus a three-year full-time course as above in Commercial Design or Typographic Design for a National Diploma in Design. Further details from the **British Federation of Master Printers**. See also ART

PROBATION OFFICER A degree or diploma in Social Studies [1] or an allied subject followed by either (a) nine to twelve months' practical training with probation officers including a residential theoretical course or (b) a year's full-time university course in Applied Social Studies [1] including practical training and preceded if possible by vacation work with probation officers. Further details from the **Probation Advisory and Training Board**.

PRODUCT AND PACKAGING DESIGN Training in Art and Design plus practice in industry (see ART).

PRODUCTION ENGINEERING - see ENGINEERING, MECHANICAL

PSYCHIATRIC SOCIAL WORK - see SOCIAL WORK

PSYCHIATRY - see MEDICINE

PSYCHOLOGY An honours degree in Psychology [1] followed by practical training and further specialized study as follows. *Clinical Psychology*: a one-year or two-year post-graduate course for a higher degree or diploma offered at several universities (list available from the **British Psychological Society**) plus a year's practical training as an assistant psychologist. *Educational Psychology*: three years' teaching normal children followed by a year's post-graduate course in Educational Psychology, offered at several universities (list available from B.P.S.). *Occupational Psychology*: two years' full-time or part-time post-graduate study at the University of London [1] for an M.Sc. or Ph.D. in Occupational Psychology or a year's full-time diploma course at the University of Liverpool [1].

PUBLIC CLEANSING 4 O-levels including English, Mathematics, and either 2 approved Science subjects or an approved Science subject and a foreign language, plus five years' employment and practical training under the scheme administered by the General Council of the **Institute of Public Cleansing**, with part-time study at a technical college [4] for O.N.C. and H.N.C. in Mechanical Engineering and the I.P.C. professional examinations. The period of training is reduced to three years for candidates who already possess a H.N.C. in Mechanical Engineering [4]. See also LOCAL GOVERNMENT SERVICE

PUBLIC HEALTH *England and Wales*: 4 O-levels including English, Mathematics, and an approved Science subject plus four years' practical

training under a system of paid pupilage with Local Authorities and part-time study for the diploma examinations of the **Public Health Inspectors Board** or, for general overseas appointments, the **Royal Society of Health**. A further six to twelve months' part-time study is necessary for the specialist examinations of the Royal Society of Health such as the diploma examinations for inspectors of meat and other foods. *Scotland*: educational qualifications are similar to those required in England and Wales, plus four years' apprenticeship in the Sanitary Department of a Local Authority and part-time study at an approved Technical College [4] for the Certificate of Competency of the **Royal Sanitary Association**. *See also* LOCAL GOVERNMENT SERVICE

PUBLIC HEALTH ENGINEERING — *see* ENGINEERING, CIVIL

PUBLIC RELATIONS WORK Public relations officers are usually recruited from men already qualified and experienced in related fields of activity; school-leavers with a good general education up to O-level may train as juniors in a public-relations department of a big organization or a firm of public relations consultants and study part-time at the Regent Street Polytechnic, London, for the professional examinations of the **Institute of Public Relations**, but they are advised to qualify first in a related field such as journalism. *See also* ADVERTISING; BROADCASTING; FILM INDUSTRY; JOURNALISM

PUBLISHING — *see* BOOK PUBLISHING

PURCHASING English and 2 other approved subjects at O-level plus junior employment in the purchasing office of an industrial or commercial concern or a public organization, with three to five years' part-time study at a Technical College [4] for O.N.C. and/or H.N.C. in Business Studies, followed by a further two years' part-time study for the diploma of the **Purchasing Officers Association**. *See also* INDUSTRY AND COMMERCE

PURSER — *see* MERCHANT NAVY

QUARRY MANAGEMENT (1) A good education, preferably up to A-level, plus apprenticeship or traineeship with a quarrying company and three to five years' part-time study at a Technical College [4] for O.N.C. and/or H.N.C. in Engineering, or the appropriate certificate of the **City and Guilds of London Institute**; or private study for the associate membership examination of the **Institute of Quarrying**; (2) full-time study at a university [1], Technical College [3, 4], or special mining school [4] for a degree, diploma, or H.N.C. in Mining, Civil Engineering, or Mechanical Engineering, or for school associateship followed by practical training and experience with a quarrying company. *See* ENGINEERING, CIVIL/MECHANICAL/MINING; GEOLOGY; SURVEYING

RADIO ENGINEERING — *see* ENGINEERING, ELECTRICAL/RADIO AND ELECTRONIC; PHYSICS; MERCHANT NAVY [*Radio Officer*]

Opportunities After O-level

RADIOGRAPHY At least 4 O-levels including English, Mathematics, and 2 Science subjects plus two or three years' theoretical and practical training in an approved hospital, leading to a diploma and membership of the **Society of Radiographers**.

RADIOLOGY - see **MEDICINE**

RAILWAY ENGINEERING - see **ENGINEERING, CIVIL/ELECTRICAL/MECHANICAL/RAILWAY**

REFRIGERATION ENGINEERING - see **ENGINEERING, HEATING/MECHANICAL**

REMEDIAL GYMNASTICS 4 O-levels including English Language plus a two-year full-time course at the School of Remedial Gymnastics and Recreational Therapy, Pindersfield General Hospital, Wakefield, Yorkshire, for the qualifying examination of the **Society of Remedial Gymnasts**, followed by a year's practical experience in a National Health Service hospital under the supervision of a qualified remedial gymnast. There is a six-month full-time training course in Remedial Gymnastics at the Pindersfield General Hospital for qualified teachers of Physical Education [2]. See also **PHYSICAL EDUCATION; PHYSIO-THERAPY**

ROAD TRANSPORT 4 O-levels including English and Mathematics, plus employment or apprenticeship in a road-transport organization and part-time study at a Technical College [4] for the graduateship and associate membership examinations of the **Institute of Transport** or the **Industrial Transport Association**. The **London Transport Executive** also has graduate training schemes for qualified mechanical, electrical, and civil engineers and for Arts graduates [1]. Further details from the I.T. See also **ENGINEERING, AUTOMOBILE/CIVIL/ELECTRICAL/MECHANICAL; INDUSTRY AND COMMERCE**

ROYAL AIR FORCE [*Commissioned Officers*] *General Duties Branch*: 5 G.C.E. subjects including English Language, Mathematics, and a foreign language or a Science subject, of which 2 are at A-level, plus three years' training at the R.A.F. College, Cranwell, as a paid cadet. *Technical Branch*: qualifications equivalent to standard required for entry to an honours degree course [1] in Engineering plus four-and-a-half years' paid cadetship at the R.A.F. College, Henlow, for the Diploma in Technology or one year at Henlow followed by three years for an honours degree in Engineering [1]. Entry to R.A.F. permanent commission is also possible direct from a university [1].

W.R.A.F. [Officer Class]: 5 approved G.C.E. subjects including English Language and Mathematics or a Science subject and 2 at A-level plus six months' training as an officer cadet or a degree or appropriate professional qualification and three months' training as an officer. Further details from the **R.A.F./W.R.A.F. Careers Information Centre**.

ROYAL MARINES Entry is by personal interview and examination for

candidates with 3 O-levels including English Language; exemption from the entrance examination is granted to candidates with 5 G.C.E. subjects (including 2 A-levels) including English Language and Mathematics. Further details from the **Director of Naval Recruiting**. See also ARMY; ROYAL NAVY

ROYAL NAVY [*Commissioned officers, men*] *General list* [*permanent commission*]: passes in 5 G.C.E. subjects (including 2 A-levels) including English Language, Mathematics, and Science subjects according to branch of naval work chosen, plus a year's full-time basic naval training as a cadet at the Britannia Royal Naval College, Dartmouth, and a second year at sea in the fleet as midshipman followed by further training, as follows. *Seamen, Supply Officers, Secretariat Officers*: another year at Dartmouth for academic training, followed by a specialist course and a further year at sea. *Engineer Officers*: three-years' full-time study at the Royal Naval Engineering College, Plymouth, for the University of London external B.Sc. degree [1] in Mechanical Engineering or Electrical Engineering or graduate membership of an appropriate engineering institution or at the University of Cambridge [1] for a degree in Mechanical Sciences, followed in both cases by a further one or two years' specialized post-graduate training. *Supplementary list* [*short-term commission, Pilots and Observers in the Fleet Air Arm, Seamen Specialization Branch*]: 5 O-levels including English Language, and Mathematics and 3 other approved subjects, plus two or three years' training including sea/air service and instruction at the **Britannia Royal Naval College**, Dartmouth. See also ENGINEERING, MARINE/MECHANICAL/ELECTRICAL; NAVAL ARCHITECTURE

Women's Royal Naval Service [*Commissioned Officers*] Most W.R.N.S. officers are promoted from the ranks (minimum educational qualifications at twenty-one are O-level passes in English Language and 1 other academic subject). Direct entry to officer grade is very limited and is confined to graduates with Arts degrees [1] or degrees in Mathematics, Physics, or Geography (for meteorological duties) or qualifications in Domestic Science, Social Science, or Physical Education. Further details from the **Director of Naval Recruiting**.

RUBBER TECHNOLOGY (1) 4 O-levels including English, Mathematics, and a Science subject (preferably Chemistry or Physics) plus a one-year full-time or a two-year 'sandwich' course at the **National College of Rubber Technology** for licentiatehip of the College and/or of the **Institution of the Rubber Industry**; or junior employment in a rubber laboratory or rubber works supplemented by three to five years' part-time study at an approved Technical College [4] or under guidance of a Fellow of the I.R.I. for the I.R.I. professional examinations or H.N.C. in Chemistry, Applied Physics, Electrical Engineering or Mechanical Engineering; or (2) English, a foreign language, Chemistry,

Opportunities After O-level

Physics, and Mathematics O-levels and 2 A-levels from Chemistry, Physics and Pure Mathematics, plus three years' full-time or a four-year or five-year 'sandwich' course at the N.C.R.T. for associateship of the college and/or of the I.R.I.; or (3) a degree [1] in Chemistry or Physics, followed by a one-year full-time or two-year 'sandwich' post-graduate course at the N.C.R.T. for associateship as above. See also CHEMISTRY; ENGINEERING, ELECTRICAL/MECHANICAL; PHYSICS; PLASTICS TECHNOLOGY

SALESMANSHIP AND SALES MANAGEMENT No formal educational qualifications are necessary, but a good education up to G.C.E. standard is desirable and a degree in Commerce or Economics [1] is valuable for entry to trainee sales management posts. Practical training usually consists of a year or more (depending on the previous experience of the recruit) in a company's work offices to gain insight into the firm's various activities, supplemented by three years' part-time study at a Technical College [4] or by correspondence course [6] for the **United Kingdom Commercial Travellers Association** diploma in Salesmanship or the diploma in Marketing of the **Institute of Marketing and Sales Management**. See also EXPORT TRADE; INDUSTRY AND COMMERCE

SANITARY ENGINEERING - see ENGINEERING, CIVIL

SANITARY INSPECTION - see PUBLIC HEALTH

SCIENTIFIC INSTRUMENT MAKING 5 G.C.H. subjects including Mathematics and Physics A-levels plus a four-year 'sandwich' course for the Dip.Tech. at Northampton C.A.T. [3] or five years' apprenticeship to a scientific-instrument manufacturer plus part-time study at an approved Technical College [4] for the professional examinations of the **British Horological Institute** or the **Institute of British Surgical Technicians**.

SCIENTIFIC LABORATORY TECHNOLOGY G.C.E. including English, Mathematics, and a Science subject O-levels are desirable but not necessary, plus junior employment and practical training in a suitable laboratory combined with three years' part-time study at a Technical College [4] for a certificate of the **Institute of Science Technology** or of the **Institute of Physics** or for a Science Laboratory Technicians Certificate of the **City and Guilds of London Institute** (all of which qualify the candidate for ordinary membership of the I.S.T.), or for O.N.C. [4] in an appropriate scientific subject; H.N.C. [4] or advanced certificates of the above institutes qualify the candidate for associate membership of the I.S.T., which can be obtained after five years of full-time employment and part-time study [4]. See also MEDICAL LABORATORY TECHNOLOGY

SCIENTIFIC RESEARCH - see ATOMIC ENERGY; BIOLOGY; CHEMISTRY; CIVIL SERVICE; ENGINEERING; MATHEMATICS; MEDICAL

LABORATORY TECHNOLOGY; PHYSICS; SCIENTIFIC LABORATORY TECHNOLOGY

SECRETARIAL WORK *Office Secretary*: educational requirements vary according to the secretarial college chosen; a good standard of general education is desirable but formal G.C.E. qualifications are not always necessary. Training courses in typing and shorthand, business practice, book-keeping, etc. last from six months to two years (full-time) depending on the college, the trainee's previous education, and the degree of specialization desired. *Chartered, Incorporated, and Company Secretaries*: 4 O-levels including English, Mathematics, and 2 other approved subjects plus a commercial or administrative apprenticeship or employment in an office, to gain practical experience, supplemented by four or five years' part-time (or three years' full-time) study at a Technical College or Commercial College [4] or by correspondence course [6] for the professional examinations of the **Chartered Institute of Secretaries** or the **Corporation of Secretaries**.

SHIPBROKING 4 O-levels or a comparable qualification or standard of education plus junior employment in a shipbroker's office supplemented by study in evening class [4] or by correspondence course [6] for the professional examinations of the **Institute of Chartered Shipbrokers**. Trainees qualify for associate membership at twenty-one if they have passed the I.C.S. intermediate examination and have been employed for three or four years in the business of shipbroking.

SHIPBUILDING—see **ENGINEERING, MARINE; NAVAL ARCHITECTURE**

SOCIAL WORK University entrance requirements [1] and preferably a period of suitable employment before academic training plus two to four years' full-time study at a university for a degree [1], diploma [1, 4], or certificate [1, 4] in Social Studies or Sociology or for a degree [1] in an allied subject followed by a one-year or two-year certificate or diploma course in Social Studies [1] plus one to three years' specialized professional training, depending on the branch of social work chosen and the student's previous experience. This period of practical training may involve a year's special university course [1] or a course arranged by one of the professional or employing bodies. Further details from the **National Council of Social Services**. See also **ALMONER; CHILD CARE; FAMILY CASEWORK; HOUSING MANAGEMENT; MORAL WELFARE WORK; PERSONNEL MANAGEMENT; PROBATION OFFICER; YOUTH EMPLOYMENT; YOUTH LEADERSHIP**

SOCIOLOGY—see **SOCIAL WORK**

SOLICITOR [*England and Wales*] 5 G.C.E. subjects from a list approved by the Law Society, including English and 2 subjects at A-level plus (1) five years' practical training under articles of clerkship in a solicitor's office combined with study for the qualifying examinations of the Law Society including a year's full-time course at the Society's School of Law

Opportunities After O-level

in London or another approved law school; or (2) a degree [1] in any subject followed by two or two-and-a-half years' practical training under articles as above and part-time study for the Law Society's final qualifying examination. Further details from the **Law Society**.

SOLICITOR [Scotland] (1) LL.B. degree in Law [1] plus two or three years' apprenticeship with a practising solicitor followed by a post-qualifying year of practical training; or (2) five years' full-time study at a university [1] for an M.A. or B.A. degree and an LL.B. degree, followed by two years' apprenticeship with a practising solicitor; or (3) five years' apprenticeship as above combined with part-time study for the qualifying examinations of the **Law Society of Scotland**.

SPEECH THERAPY Passes in 5 G.C.E. subjects including English Language and preferably 2 at A-level plus a three-year full-time course at one of eight schools approved by the **College of Speech Therapists**, for a diploma and admission to the college as Licentiate.

SPEECH TRAINING - see **DRAMATIC ART**

STAGE MANAGEMENT - see **DRAMATIC ART**

STATISTICAL WORK (1) English and Mathematics at O-level plus employment in an office where statistical work is done and study in evening class [4] for the Registered Statistical Assistants' Certificate of the **Institute of Statisticians**; (2) English Language and Mathematics at O-level and statistics at A-level plus employment and part-time study [4] as above for the Institute's professional examinations, success in which combined with one or two years' approved experience qualify the candidate for associate membership; (3) a full-time course at the University of London for a B.Sc. degree in Statistics [1] or at any other university for a degree in Mathematics or Economics with special emphasis on statistics [1] followed if necessary by a one-year or two-year full-time university course for a diploma in statistics [1]. Further details from the **Royal Statistical Society**.

STEWARD, STEWARDESS - see **MERCHANT NAVY**

STOCK EXCHANGE No formal educational qualifications are necessary, but a good standard of education is desirable. After two or more years working as a clerk on the floor of the house, a candidate (minimum age twenty-one) must be nominated, proposed, and seconded by members of the Stock Exchange and, after personal examination, be accepted by the Council of the Exchange. The entry fee is 1000 guineas and the annual membership subscription 180 guineas. Further experience is gained by junior employment in a broker's or jobber's office and part-time study at the **City of London College** or **Coleman Street Ward School**. Further details from the **Council of the Stock Exchange**.

STRUCTURAL ENGINEERING - see **ENGINEERING, CIVIL**

SURGERY - see **MEDICINE**

SURGICAL INSTRUMENT TECHNOLOGY - see SCIENTIFIC INSTRUMENT MAKING

SURVEYING, BUILDING/QUANTITY/VALUATION 5 O-levels including English Language and Mathematics (2 or 3 A-levels will be required in 1966) plus (1) four or five years' approved employment as an articled pupil, apprentice, or technical assistant in a surveyor's office supplemented by part-time study at a Technical College [4] or by correspondence course [6] for the professional examinations leading to membership of the **Royal Institution of Chartered Surveyors** or other appropriate professional body; (2) a two-year or three-year full-time course, up to the standard of the intermediate professional examination, at a college recognized by the R.I.C.S., followed by two years' practical experience in approved employment and further part-time study [4] for the final professional examinations. Graduates in Estate Management [1] are granted exemption from all written examinations leading to membership of the R.I.C.S. but must complete two years' practical training in an approved surveyor's office to qualify fully. *See also* AUCTIONEERING AND ESTATE AGENCY; HOUSING MANAGEMENT; LAND AGENCY; TOWN AND COUNTRY PLANNING

SURVEYING, HYDROGRAPHIC Hydrographic surveying requires considerable sea-going experience; a candidate must have the Ministry of Transport's 1st Certificate of competency or equivalent Royal Navy qualification, and must have passed the hydrographic section of the R.I.C.S. final examination, to qualify fully for membership of the R.I.C.S. as a chartered hydrographic surveyor. Further details from the **Royal Institute of Chartered Surveyors**. *See also* ENGINEERING, MARINE; MERCHANT NAVY; ROYAL NAVY

SURVEYING, LAND 5 O-levels including English Language and Mathematics (2 or 3 A-levels will be required in 1966) plus training as in (1) and (2) of *Surveying, Building/Quantity/Valuation*; or (3) a four-year full-time course in Land Surveying at the South West Essex Technical College [4] followed by two years' practical experience in an approved office, to qualify for membership of the R.I.C.S.; or (4) a degree [1] or diploma [3, 4] in Civil Engineering, Mathematics, a physical science, or Geography, followed by a one-year or two-year post-graduate diploma course in Land Surveying at the University of London [1] (which grants exemption from the R.I.C.S. intermediate examination) and a further two years' practical experience in approved employment and part-time study for the final professional examination, to qualify for membership of the R.I.C.S. *See also* ARMY [Technical Corps]; CARTOGRAPHY; CIVIL SERVICE

SURVEYING, MINING 5 O-levels including English Language and Mathematics plus four or five years' employment as an assistant or apprentice (mainly through the **National Coal Board Apprenticeship Scheme** in

Opportunities After O-level

Great Britain) in the surveying office of a mine and part-time study at a Technical College [4] for H.N.C. in Mine Surveying or the intermediate examination (Mining Surveying Section) of the R.I.C.S., both of which give exemption from the written examination for the required Surveyor's Certificate granted by the Minister of Power on the recommendation of the Mining Qualifications Board (minimum age twenty-one). A further three years' approved practical experience and part-time study [4] for the 1st Class Certificate of Competency (and full professional membership of the R.I.C.S., if desired) is necessary, to qualify for an appointment with statutory responsibilities. *See also* ENGINEERING, MINING

TEACHING (1) 5 O-levels (1 or more A-levels are an advantage) plus a three-year full-time course at a College of Education [2] recognized by the Department of Education and Science; (2) a degree [1] preferably followed by a year's full-time postgraduate teacher's training course in a university Department of Education [1] or at a College of Education [2] for a diploma in Education or a teacher's diploma. In Scotland teachers are generally required to have a university degree [1] unless already qualified in special technical subjects such as Art, Domestic Science, Music. *Teachers of Art, Domestic Science, Drama, Educational Handwork, Music, Physical Education*: persons holding qualifications in these subjects may teach on the strength of them, but are advised also to take a year's full-time teacher's training course [2] as above. Alternatively, candidates may take a three-year full-time course at a specialist College of Education [2] where they may concentrate on the subjects of their choice (*see also* ART; DANCING; DOMESTIC SCIENCE; DRAMATIC ART; MUSIC; PHYSICAL EDUCATION). *Teachers of Infants and Nursery-age Children*: training is usually as in (1) above at specialist Colleges of Education [2]. *Teachers of Blind, Deaf, or Educationally Subnormal Children*: after qualifying as ordinary teachers as in (1) and (2) above, and preferably gaining some experience of teaching normal children (except for teachers of the deaf), teachers of handicapped children must study for additional diploma qualifications [2] which they should obtain within three years of taking up their first appointment. They may do so either through employment and practical training at a school for blind/deaf/educationally subnormal children or (teachers of the blind) by taking a one-year full-time course at the University of Birmingham [1] or (teachers of the deaf) at the University of Manchester [1] (*see also* OCCUPATIONAL THERAPY; ORTHOPTICS; SPEECH THERAPY). Further details from the **Department of Education and Science**.

TELECOMMUNICATIONS — *see* ENGINEERING, ELECTRICAL/RADIO AND ELECTRONIC; CIVIL SERVICE

TELEVISION — *see* BROADCASTING; DRAMATIC ART; ENGINEERING, ELECTRICAL/RADIO AND ELECTRONICS

TEXTILE DESIGN — *see* ART

TEXTILE TECHNOLOGY (1) English, Mathematics, and 2 Science subjects (preferably Physics and Chemistry) at O-level plus five years' junior employment or apprenticeship in the textile industry with part-time study at a Technical College [4] for O.N.C. and H.N.C. in General Textile Technology followed by further part-time study [4] for the associateship examinations of the Textile Institute, which qualify the successful candidate (minimum age twenty-five) for the professional title of Chartered Textile Technologist; (2) a full-time or 'sandwich' course at a university [1] or Technical College [3, 4] for a degree, diploma, or college associateship in textiles followed by two years' experience in the practice or teaching of textile technology and if necessary further study for the T.I. associateship examination (Part II) to qualify as Chartered Textile Technologist.

THEATRE WORK - see **DRAMATIC ART**

TOWN AND COUNTRY PLANNING (1) 5 O-levels including English Language, Mathematics, and a foreign language or History or Geography plus junior employment in the office of a local Planning Authority or private consultant, and many years' part-time study at a Technical College [4] for professional examinations leading to membership of the Town Planning Institute, the Special Diploma in Town Planning of the Royal Institution of Chartered Surveyors (minimum age twenty-five), or the Certificate in Town Planning of the Institution of Municipal Engineers; (2) university entrance requirements plus a four-year or five-year full-time course at the University of Durham or the University of Manchester for a degree in Town Planning [1] or at a Technical College [4] for a professional qualification as above, followed by two years' practical experience in a Town Planning Office to qualify for T.P.I. associate membership; (3) professional qualifications in Architecture [5], Civil Engineering [3, 4], or Surveying or a degree [1] in Geography or Economics plus two years' full-time or part-time study at a university [1] or Technical College [4] for a diploma in Town Planning or the T.P.I. final examinations and a further one or two years' employment in a Town Planning Office to gain the necessary two years' practical experience required for T.P.I. associate membership. *See also* ARCHITECTURE; ENGINEERING, CIVIL; LOCAL GOVERNMENT SERVICE; SURVEYING

TRANSPORT AND COMMUNICATIONS - see **AIRCRAFT INDUSTRY; CIVIL AVIATION; CIVIL SERVICE; ENGINEERING, AUTOMOBILE/ELECTRICAL/MARINE/RADIO AND ELECTRONICS/RAILWAY; ROAD TRANSPORT**

TRAVEL AGENCY 4 O-levels including English and preferably Mathematics, Geography, and a foreign language and at least five years' junior employment in a travel agency and part-time study at a Technical College [4] or Commercial College [4] or by correspondence course [6]

Opportunities After O-level

for the professional examinations qualifying for associate membership (minimum age twenty-five) of the **Institute of Travel Agents**.

TYPOGRAPHY — *see* **PRINTING INDUSTRY**

VALUATION SURVEYING — *see* **SURVEYING, BUILDING/QUANTITY/VALUATION**

VENTILATING ENGINEERING — *see* **ENGINEERING, HEATING/MECHANICAL**

VETERINARY SURGERY Full-time course at a university [1] for a veterinary degree, which qualifies holder for entry in the Register of the **Royal College of Veterinary Surgeons**.

VOCATIONAL GUIDANCE — *see* **PSYCHOLOGY [Occupational]; SOCIAL WORK; YOUTH EMPLOYMENT**

WATCHMAKING — *see* **SCIENTIFIC INSTRUMENT MAKING**

WATER ENGINEERING — *see* **ENGINEERING, CIVIL/WATER**

WEAVING — *see* **TEXTILE TECHNOLOGY**

WELDING ENGINEERING — *see* **ENGINEERING, MECHANICAL/WELDING; METALLURGY**

WELFARE WORK — *see* **SOCIAL WORK**

WOMEN'S ROYAL AIR FORCE — *see* **ROYAL AIR FORCE**

WOMEN'S ROYAL ARMY CORPS — *see* **ARMY**

WOMEN'S ROYAL NAVAL SERVICE — *see* **ROYAL NAVY**

WORKS ACCOUNTANCY — *see* **ACCOUNTANCY**

WORKS MANAGEMENT — *see* **INDUSTRY AND COMMERCE**

YOUTH EMPLOYMENT (1) 4 O-levels including English plus at least three years' clerical employment in the service with part-time study for an appropriate qualification in Social Studies [4] followed (at twenty-three) by a one-year full-time course at the **Adult Education Centre**, Lamorbey Park, Sidcup or at the **Manchester College of Commerce** for the Diploma in Vocational Guidance; (2) full-time study at a university for a degree [1] or diploma [1, 4] in a Social Science subject, Psychology, or Public Administration followed by a six-month full-time course for the Diploma in Vocational Guidance as above and a year's practical experience of youth employment work. Qualified teachers, graduates in subjects other than these already specified, and entrants with other acceptable qualifications, such as experience in industry or the professions, may qualify as Youth Employment Officers after completing a one-year full-time course for the Diploma in Vocational Guidance as above and a further year's approved employment in the service. Further details from the **Youth Employment Service Training Board**. *See also* **CIVIL SERVICE; LOCAL GOVERNMENT SERVICE; PSYCHOLOGY; SOCIAL WORK; TEACHING**

YOUTH LEADERSHIP 5 G.C.E. subjects preferably including 2 at A-level plus experience of work with young people and a one-year or two-year full-time course in Youth Leadership (minimum age of entry twenty-

three in England and Wales, twenty-one in Scotland). Qualified teachers [2] and graduates [1] in Social Science are also accepted by the **Department of Education and Science** as qualified for youth leadership.

Further details from the D.E.S. *See also* SOCIAL WORK; TEACHING
ZOOLOGY — *see* BIOLOGY

Bibliography

- A Career in Music*. Ed. R. Elkin. Novello & Co Ltd. 21s.
Aeroplane Directory of British Aviation. Temple Press. 42s.
Annual Charities Register and Digest. F.W.A. 18s. 6d.
Cambridge Reporter. Weekly newspaper, obtainable from the C.U.P. 6d. plus 5d postage.
Cambridge Students Handbook. C.U.P. Approx. 15s.
Careers Encyclopaedia. Ed. G. H. Chaffin and F. J. Edmonds. Macmillan & Co. 20s.
Careers Guide. H.M.S.O. 7s. 6d.
Careers in Technology. M. Goldsmith. Penguin Books. 4s.
Choice of Careers. H.M.S.O. 6d. to 7s. 6d. *Art and Design* (103) 2s. *Dancing* (99). 1s. *Dramatic Art* (98). 1s. *Dress Designer* (10). 3d. *Music* (101). 1s.
The titles in this series cover over 120 different careers.
Commonwealth Universities Year Book. A.U.B.C. 84s.
Compendium of University Entrance Requirements. Committee of Vice-Chancellors and Principals of the Universities of the U.K. 8s. 6d.
Educational Charities. N.U.S. 2s.
Education Committees Year Book. Councils & Education Press. 35s.
Establishments for the Training of Teachers (D.E.S. Annual List 172). H.M.S.O. 3s.
Full-Time Degree Courses outside Universities. Truman & Knightley. 4s.
Grants for Higher Education. M. Hastings. Cresset Press. 10s. 6d.
Grants Year Book. N.U.S., 1963. 4s.
Handbook on Training for Teaching. A.T.C.D.E. Methuen. 50s.
Higher Education. Regional Advisory Councils. 5s.
Higher Education in the United Kingdom. Longman, Green & Co. 7s. 6d.
Holiday Courses in Europe. P. Latham. Blackie & Son. 25s. (obtainable at 13s. 6d. from A.C.E.)
Introducing N.U.S. N.U.S. 10d.
N.A.C.A.E. Report. H.M.S.O. 1s. 6d.
Oxford University Gazette. O.U.P. 7s. 6d.
Public Education in Scotland. H.M.S.O. 5s.
Sandwich Courses. P. F. R. Venables. Max Parrish. 18s.
Students' Guide to Europe. P. Latham. Blackie & Son. 25s. (obtainable at 13s. 6d. from A.C.E.)

Opportunities After O-level

Technical Education in Britain. H.M.S.O. 3s.

Technical Education and Social Change. S. F. Cotgrove. Allen & Unwin. 25s.

The Making of a Dancer. Arnold Haskell. A. & C. Black. 8s. 6d.

U.C.C.A. Handbook. Revised annually. 2s. 6d.

University and College Entrance: the Basic Facts. N.U.T. 4s. 6d.

University and other Awards Regulations. H.M.S.O. 8d. (post free 11d.)

Vocational Courses in Colleges and Schools of Arr. N.A.C.A.E. 1962 Report, H.M.S.O. 1s. 6d.

Where 12. A.C.E.

Where Supplement 2: 'Changing Tracks: Non-School Subjects at the Universities'. A.C.E.

Which University? Cornmarket Press. 15s.

Year Book of Technical Education and Careers in Industry. Ed. H. C. Dent. A. & C. Black. 40s.

Free Pamphlets

D.E.S.

A Career in Education for University Graduates

Becoming a Teacher

Full-Time Agricultural Education in England and Wales

Grants to Students: First Degree and Comparable Courses

Programme of One-Year and One-Term Courses for Qualified Teachers 1964-5

Teaching Handicraft

Teaching Housecraft

You'd like to Teach? A Chance for the late Entrant

Circular 7/62 (Teacher-training grants)

Circular 9/62 (Local Authorities payments and grants)

N.I.M.E.

Admission of Students to Training as Teachers

S.E.D.

Prospects in Teaching

Teaching as a Career for the Undergraduate

Would You Like to Become a Teacher?

OTHER

N.C.T.A. Report

Organizations and their Addresses

A.A.	Advertising Association, 1 Bell Yard, London WC2 Architectural Association, 34 Bedford Square, London WC1
A.B.C./T.V.	ABC Television Ltd, Broom Road, Teddington, Surrey
A.C.C.A.	Association of Certified and Corporate Accountants, 22 Bedford Square, London WC1
A.C.E.	Advisory Centre for Education, 57 Russell Street, Cambridge
A.D.O.	Association of Dispensing Opticians, 50 Nottingham Place, London W1
A.E.A.	Atomic Energy Authority, 11 Charles II Street, London SW1
A.E.R.E.	Atomic Energy Research Establishment, Harwell, Didcot, Berkshire
A.G.F.C.	Association of General and Family Caseworkers, Denison House, 296 Vauxhall Bridge Road, London SW1
A.I.O.	Army Information Office, 5 Gt Scotland Yard, London SW1
A.M.S.	Art of Movement Studio, Woburn Hill, Addlestone, Surrey
A.O.T.	Association of Occupational Therapists, 251 Brompton Road, London SW3
A.P.S.W.	Association of Psychiatric Social Workers, 71 Albany Street, London NW1
A.S.L.I.B.	Association of Special Libraries and Information Bureaux, 3 Belgrave Square, London SW1
A.T.C.D.E.	Association of Teachers in Colleges and Departments of Education, R.T.B. House, Gower Street, London WC1
A.T.T.I.	Association of Teachers in Technical Institutes, Hamilton House, Mabledon Place, London WC1
A.U.B.C.	Association of Universities of the British Commonwealth, 36 Gordon Square, London WC1

Opportunities After O-level

	<i>Scholarships and Appointments: Marlborough House, Pall Mall, London SW1</i>
B.A.	Booksellers Association, 14 Buckingham Palace Gardens, London SW1
B.A.C.I.E.	British Association for Commercial and Industrial Education, 26a Buckingham Palace Road, London SW1
B.B.C.	British Broadcasting Corporation, Broadcasting House, Portland Place, London W1
B.B.S.I.	British Boot and Shoe Institution, 5 Castilian Terrace, Northampton
B.C.C.	British Council of Churches, 10 Eaton Gate, London SW1
B.D.A.	British Dental Association, 13 Hill Street, London W1 British Diabetic Association, 251 Brompton Road, London SW3
B.F.M.P.	British Federation of Master Printers, 11 Bedford Row, London WC1
B.H.I.	British Horological Institute, 35 Northampton Square, London EC1
B.I.E.T.	British Institute of Engineering Technology, College House, 29-31 Wright's Lane, London W8
B.I.M.	British Institute of Management, 80 Fetter Lane, London EC4
B.I.R.E.	British Institute of Radio Engineers, 9 Bedford Square, London WC1
B.I.S.F.	British Iron and Steel Federation, Steel House, Tothill Street, London SW1
B.M.A.	British Medical Association, B.M.A. House, Tavistock Square, London WC1. <i>Scotland: 7 Brumshaugh Gardens, Edinburgh 3</i>
B.O.A.	British Optical Association, 65 Brook Street, London W1
B.O.B.	British Orthoptic Board, Tavistock House North, Tavistock Square, London WC1
B.P.S.	British Psychological Society, Tavistock House South, Tavistock Square, London WC1
B.R.M.A.	Board of Registration of Medical Auxiliaries, B.M.A. House, Tavistock Square, London WC1
B.S.I.	Building Societies Institute, 7 Aldford Street, London W1
B.S.M.	Birmingham and Midlands School of Music, Paradise St, Birmingham 1
B.S.M.B.	British School of Malting and Brewing, The University, Birmingham

Organizations and their Addresses

B.S.O.	British School of Osteopathy, 16 Buckingham Gate, London SW1
B.U.	Baptist Union of Gt Britain and Northern Ireland, Baptist Church House, 4 Southampton Row, London WC1
C.A.	Consumers Association Ltd, 14 Buckingham Street, London WC2
C.A.C.M.	<i>see below C.A.C.T.M.</i>
C.A.C.T.M.	Central Advisory Council for the Ministry, 9 Tufton Street, London SW1
C.A.E.A.I.	Chartered Auctioneers and Estate Agents Institute, 29 Lincoln's Inn Fields, London WC2
C.C.	College of Ceramics, North Staffordshire College of Technology, Stoke-on-Trent, Staffordshire
C.E.M.	College of Estate Management, St Alban's Grove, London W8
	Committee on Education for the Ministry, Church of Scotland Offices, 121 George Street, Edinburgh 2
C.E.P.	Councils and Education Press Ltd, 10 Queen Anne Street, London W1
C.G.L.I.	City and Guilds of London Institute, 76 Portland Place, London W1
C.I.	Clothing Institute, 17 Henrietta Street, London WC2
C.I.B.	Corporation of Insurance Brokers, 15 St Helen's Place, London EC3
C.I.I.	Chartered Insurance Institute, The Hall, 20 Aldermanbury, London EC2
C.I.P.A.	Chartered Institute of Patent Agents, Staple Inn Buildings, London WC1
C.I.S.	Chartered Institute of Secretaries, 14 New Bridge Street, London EC4
C.L.A.S.	Chartered Land Agents Society, 21 Lincoln's Inn Fields, London WC2
C.L.C.	City of London College, Electra House, Moorgate, London EC2
C.L.E.	Council of Legal Education, 7 Stone Buildings, London WC2
C.M.B.	Central Midwives Board, 39 Harrington Gardens, London SW7
C.R.C.H.	Central Register and Clearing House, 151 Gower Street, London WC1
C.R.E.I.	Capital Radio Engineering Institute, Granville House, 132-5 Sloane Street, London SW1
C.S.	Corporation of Secretaries, Devonshire House,

Opportunities After O-level

	13 Devonshire Street, London W1
	Church of Scotland, 121 George Street, Edinburgh 2
	College of the Sea, 207 Balham High Road, London SW 17
C.S.C.	Civil Service Commission, 6 Burlington Gardens, London W1
C.S.E.	Council of the Stock Exchange, Mansion House Place, London EC3
C.S.P.	Chartered Society of Physiotherapy, Tavistock House South, Tavistock Square, London WC1
C.S.T.	College of Speech Therapists, 68 Queen's Gardens, London W2
C.S.W.C.	Coleman Street Ward School, Coleman Street, London EC2
C.T.C.C.C.	Central Training Council in Child Care, Thames House South, Millbank, London SW1
C.U.	Congregational Union of England and Wales, Memorial Hall, Farringdon Street, London EC4
C.U.P.	Cambridge University Press, Bentley House, 200 Euston Road, London NW1
C.W.M.C.	Council for Women's Ministry in the Church, 9 Tufnell Street, London SW1
C.Y.E.E.	Central Youth Employment Executive, Ebury Bridge House, Ebury Bridge Road, London SW1
D.A.T.A.	Draughtsmens and Allied Technicians Association, Drayton House, Gordon Street, London WC1 <i>Examinations:</i> Onslow Hall, Little Green, Richmond, Surrey
D.E.S.	Department of Education and Science, Curzon Street, London W1
D.N.R.	<i>Awards Branch:</i> 13 Cornwall Terrace, London NW1 Director of Naval Recruiting, The Admiralty, London SW1
D.S.T.	Delegacy for Social Training, The University, Oxford
E.A.C.	External Advisory Council, Malet Street, London WC1
E.A.W.	Electrical Association for Women, 25 Foubert Place, London W1
E.C.	Electricity Council, 30 Millbank, London SW1 <i>Education and Training Officer:</i> Winsley Street, London W1
E.M.I.	Electric and Musical Industries Ltd, E.M.I. Institutes, 43 Grove Park Road, London W4
F.A.	Faculty of Actuaries, 23 St Andrew's Square, Edinburgh

Organizations and their Addresses

F.C.	Faculty of Advocates, Parliament Square, Edinburgh
F.M.F.	Forestry Commission, 25 Savile Row, London W1
	Food Manufacturers Federation, 4 Lygon Place, London SW1
F.P.	Faculty of Physiotherapists, 170 Hope Street, Glasgow C2
F.W.A.	Family Welfare Association, 296 Vauxhall Bridge Road, London SW1
G.A.P.N.	Guild of Air Pilots and Navigators, 14 South Street, London W1
G.A.T.T.C.	Graduate Art Teacher Training Centre, Clearing House, College of Art, Leicester
G.C.	Gas Council, 1 Grosvenor Place, London SW1
G.D.C.	General Dental Council, 37 Wimpole Street, London W1
G.D.P.A.	General Dental Practitioners Association, 15 Islington High Street, London N1
G.L.C.	Greater London Council, County Hall, London SE1
G.M.C.	General Medical Council, 44 Hallam Street, London W1
G.M.F.	Glass Manufacturers Federation, 19 Portland Place, London W1
G.N.C.	General Nursing Council, 23 Portland Place, London W1
G.O.C.	General Optical Council, 41 Harley Street, London W1
G.S.	Geological Society, Burlington House, Piccadilly, London W1
G.S.M.D.	Guildhall School of Music and Drama, Victoria Em- bankment, London EC4
G.T.T.R.	Graduate Teacher Training Registry, 151 Gower Street, London WC1
H.C.I.	Hotel and Catering Institute, 24 Portman Square, London W1
H.M.S.O.	Her Majesty's Stationery Office, King's Way, London WC2
H.R.C.	Hairdressers' Registration Council, 39 Grafton Way, Tottenham Court Road, London W1
I.A.	Institute of Actuaries, Staple Inn Hall, High Holborn, London WC1 <i>Scotland: Faculty of Actuaries, 23 St Andrew's Square, Edinburgh</i> Institute of Almoners, 42 Bedford Square, London WC1 Institute of Archaeology (University of London), Gordon Square, London WC1

Opportunities After O-level

I.A.A.S.	Incorporated Association of Architects and Surveyors, 29 Belgrave Square, London SW1
I.A.E.	Institution of Agricultural Engineers, 6 Buckingham Gate, London SW1
I.B.	Institute of Bankers, Lombard Street, London EC3 Institute of Biology, 41 Queen's Gate, London SW7 Institute of Brewing, 33 Clarges Street, London EC3 Institute of Builders, 48 Bedford Square, London WC1
I.B.A.E.	Institution of British Agricultural Engineers, 6 Queen Square, London WC1
I.B.L.	Institute of British Launderers, 16-17 Lancaster Gate, London W2
I.B.P.	Institute of British Photographers, 38 Bedford Square, London WC1
I.B.S.	Institute of Bankers in Scotland, 62 George Street, Edinburgh
I.B.S.T.	Institute of British Surgical Technicians, 6 Holborn Viaduct, London EC1
I.C.	Institute of Ceramics, Shelton House, Stoke Road, Shelton, Stoke-on-Trent, Staffs. Institute of Chiropodists, 59 Gloucester Place, London W1
I.C.A.	Institute of Company Accountants, 11 Portland Road, Edgbaston, Birmingham
I.C.A.E.W	Institute of Chartered Accountants in England and Wales, Moorgate Place, London EC2
I.C.A.S.	Institute of Chartered Accountants in Scotland, 27 Queen Street, Edinburgh 2
I.C.E.	Institution of Chemical Engineers, 16 Belgrave Square, London SW1 Institution of Civil Engineers, 1 Great George Street, London SW1
I.C.G.	Institute of Certificated Grocers, 50 Doughty Street, London WC1
I.C.S.	Institute of Chartered Shipbrokers, Baltic Exchange, 25 Bury Street, London EC3 International Correspondence Schools, Intertext House, Parkgate Road, London SW11
I.C.S.T.	Imperial College of Science and Technology, Prince Consort Road, London SW7
I.C.W.	Institute of Clerks of Works, 15 Eldon Street, London, EC2
I.C.W.A.	Institute of Cost and Works Accountants, 63 Portland Place, London W1

Organizations and their Addresses

I.E.	Institute of Export, Export House, 14 Hallam Street, London W1
I.E.D.	Institution of Engineering Designers, 38 Portland Place, London W1
I.E.E.	Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London WC2
I.E.S.	Illuminating Engineering Society, York House, Westminster Bridge Road, London SE1
I.F.	Institute of Fuel, 18 Devonshire Street, London W1
I.G.E.	Institution of Gas Engineers, 17 Grosvenor Crescent, London SW1
I.H.	Institute of Housing, 50 Tufton Street, London SW1
I.H.A.	Institute of Hospital Administrators, 75 Portland Place, London W1
I.H.E.	Institution of Highway Engineers, 47 Victoria Street, London SW1
I.H.V.E.	Institution of Heating and Ventilating Engineers, 49 Cadogan Square, London SW1
I.I.B.D.I.D.	Incorporated Institute of British Decorators and Interior Design, 37 Soho Square, London W1
I.I.S.	Institute of Information Scientists, 'Torran', Crofton Road, Orpington, Kent
I.L.	Institute of Linguists, 3 Craven Hill, London W2
I.L.A.	Institute of Landscape Architects, 1 Park Crescent, London W1
I.L.E.	Institution of Locomotive Engineers, 30 Buckingham Gate, London SW1
I.M.	Institute of Meat, 19 Holborn Viaduct, London EC1
	Institution of Metallurgists, 4 Grosvenor Gardens, London SW1
I.M.A.	Institutional Management Association, Swinton House, 324 Gray's Inn Road, London WC1
I.M.E.	Institution of Marine Engineers, Memorial Building, 76 Mark Lane, London EC3
	Institution of Mechanical Engineers, 1 Birdcage Walk, London SW1
	Institution of Mining Engineers, 3 Grosvenor Crescent, London SW1
	Institution of Municipal Engineers, 84 Eccleston Square, London SW1
I.M.I.	Institute of the Motor Industry, 40 Queen's Gate, London SW7
I.M.I.T.	Institute of Musical Instrument Technology, L.C.C.

Opportunities After O-level

	Technical College for the Furnishing Trades, Fitfield Street, London N1
I.M.L.T.	Institute of Medical Laboratory Technology, 74 New Cavendish Street, London W1
I.M.M.	Institution of Mining and Metallurgy, 44 Portland Place, London W1
I.M.S.M.	Institute of Marketing and Sales Management, Marketing House, Richbell Place, Lamb's Conduit Street, London WC1
I.M.T.A.	Institute of Municipal Treasurers and Accountants, 1 Buckingham Place, London SW1
I.O.M.	Institute of Office Management, 56 Victoria Street, London SW1
I.P.	Institute of Packaging, Malcolm House, Empire Way, Wembley, Middlesex
	Institute of Physics, 47 Belgrave Square, London SW1
I.P.A.	Institute of Practitioners in Advertising, 44 Belgrave Square, London SW1
I.P.C.	Institute of Public Cleansing, 28 Portland Place, London W1
I.P.E.	Institution of Production Engineers, 10 Chesterfield Street, London W1
I.P.M.	Institute of Personnel Management, 80 Fetter Lane, London EC4
I.P.R.	Institute of Public Relations, Hastings House, Norfolk Street, London WC2
I.Q.	Institute of Quarrying, 62-64 Baker Street, London W1
I.Q.S.	Institute of Quantity Surveyors, 98 Gloucester Place, London W1
I.R.I.	Institute of the Rubber Industry, 4 Kensington Palace Gardens, London W8
I.S.	Institute of Statisticians, 55 Park Lane, London W1
I.S.A.L.P.A	Incorporated Society of Auctioneers and Landed Property Agents, 34 Queen's Gate, London SW7
I.S.E.	Institution of Structural Engineers, 11 Upper Belgrave Street, London, SW1
I.S.T.	Institute of Science Technology, Royal College of Science, Imperial Institute Road, London SW7
I.T.	Institute of Transport, 80 Portland Place, London W1
I.T.A.	Industrial Transport Association, 62 Oxford Street, London W1
	Institute of Travel Agents, 6 Duke Street, London SW1
I.W.	Institute of Welding, 54 Prince's Gate, London SW7

Organizations and their Addresses

I.W.E.	Institution of Water Engineers, Parliament Mansions, Abbey Orchard Street, London sw1
I.W.M.	Institution of Works Managers, 196 Shaftesbury Avenue, London wc2
I.W.S.	Institute of Works Study, 3 Cork Street, London w1
L.A.	Library Association, Chaucer House, Malet Place, London wc1
L.B.J.R.E.	London Board of Jewish Religious Education, Woburn House, Upper Woburn Place, London wc1
L.C.C.	London County Council, County Hall, London se1
L.C.M.	London College of Music, 47 Gt Marlborough Street, London w1
L.C.O.	London College of Osteopathy, 24-25 Dorset Square, London nw1
L.G.E.B.	Local Government Examinations Board, 41 Belgrave Square, London sw1
L.S.	Law Society, Law Society's Hall, Chancery Lane, London wc2
L.S.F.T.	London School of Film Technique, 96 Charlotte Street, London w1
L.S.L.A.	London School of Librarianship and Archives, University College, Gower Street, London wc1
L.S.M.P.	London School of Medical Photography, St Bartholomew's Hospital, London ec1
L.S.S.	Law Society of Scotland, Law Society's Hall, North Bank Street, Edinburgh
L.S.S.L.	Law Society's School of Law, 33 Lancaster Gate, London w2
L.T.E.	London Transport Executive, 55 Broadway, London sw1
M.A.	Mathematical Association, 29 Gordon Square, London wc1
	Ministry of Aviation, Training and Education Branch, 61-72 Gower Street, London wc1
	Museums Association, 33 Fitzroy Street, London w1
M.M.T.D.	Methodist Ministerial Training Department, 1 Central Buildings, Matthew Parker Street, London sw1
M.O.	Meteorological Office, Air Ministry, Kingsway, London wc2
	<i>Training:</i> London Road, Bracknell, Berkshire
M.R.S.	Market Research Society, 39 Hertford Street, London w1
M.T.	Ministry of Transport, St Christopher House, Southwark Street, London se1

Opportunities After O-level

M.T.C.A.	Ministry of Transport and Civil Aviation, Shell Mex House, Strand, London WC2
N.A.C.A.E.	National Advisory Council for Art Education, c/o Department of Education and Science, Curzon Street, London W1
N.A.L.G.O.	National and Local Government Officers Association, 8 Harewood Row, London NW1 <i>Correspondence Institute: 1 York Gate, London NW1</i>
N.B.B.E.	National Board for Bakery Education, 13 Ashley Place, London SW1
N.C.A.E.	National College of Agricultural Engineering, Silsoe, Bedfordshire
N.C.B.	National Coal Board, Hobart House, Grosvenor Place, London SW1
N.C.D.A.D.	National Council for Diplomas in Art and Design, 16 Park Crescent, London W1
N.C.F.T.	National College of Food Technology, Weybridge, Surrey
N.C.H.V.R.F.E.	National College of Heating, Ventilating, Refrigeration and Farm Engineering, Borough Road Technical College, London SE1
N.C.R.T.	National College of Rubber Technology, Northern Polytechnic, Holloway Road, London N7
N.C.S.S.	National Council of Social Service, 26 Bedford Square, London WC1
N.C.T.A.	National Council for Technological Awards, 24 Park Crescent, London W1
N.C.T.J.	National Council for the Training of Journalists, 88 Chancery Lane, London WC2
N.C.T.Y.L.	National College for the Training of Youth Leaders, Humberstone Drive, Leicester.
N.E.C.	National Extension College, 57 Russell Street, Cambridge
N.F.F.	National Froebel Foundation, 2 Manchester Square, London W1
N.I.A.E.	National Institute of Adult Education, 35 Queen Anne Street, London W1
N.I.E.	National Institute of Engineering, 148-150 High Holborn, London EC1
N.I.M.E.	Northern Ireland Ministry of Education, Dundonald House, Upper Newtownards Street, Belfast 4
N.J.C.L.A.	National Joint Council for Local Authorities, 41 Belgrave Square, London SW1

Organizations and their Addresses

N.L.C.	National Leathersellers College, 176 Tower Bridge Road, London SE1
N.N.E.B.	National Nursery Examination Board, 90 Buckingham Palace Road, London SW1
N.S.M.	Northern School of Music, 91 Oxford Road, Manchester 15
N.U.S.	National Union of Students, 3 Endsleigh Street, London WC1
N.U.T.	National Union of Teachers, Hamilton House, Mableton Place, London WC1
O.C.A.O.	Oxford Colleges Admissions Office, Banbury Road, Oxford
O.S.	Ordnance Survey, Civil Service Commission, Burlington Gardens, London W1
O.U.P.	Oxford University Press, Amen House, Warwick Square, London EC4 <i>Showroom:</i> 116 High Street, Oxford
P.A.	Publishers Association, 19 Bedford Square, London WC1
P.A.C.	Paint Apprenticeship Council, Paint Industry House, 79-80 High Holborn, London WC1
P.A.T.B.	Probation Advisory and Training Board, Home Office, Whitehall, London SW1
P.C. of I	Presbyterian Church of England, The Secretary, Board of Studies, Westminster College, Cambridge
P.E.A.	Physical Education Association, Ling House, 10 Nottingham Place, London W1
P.H.I.B.	Public Health Inspectors Board, 90 Buckingham Palace Road, London SW1
P.I.	Plastics Institute, 6 Mandeville Place, London W1
P.O.	Patent Office, 25 Southampton Buildings, Chancery Lane, London WC2
P.O.A.	Purchasing Officers Association, 146a Queen Victoria Street, London EC4
P.R.D.	Police Recruiting Department, Home Office, Whitehall, London SW1
P.S.	Pharmaceutical Society of Gt Britain, 17 Bloomsbury Square, London WC1 Physical Society, 47 Belgrave Square, London SW1
R.A.	Royal Academy, Burlington House, Piccadilly, London W1
R.A.C.	Royal Agricultural College, Cirencester, Gloucestershire
R.A.D.	Royal Academy of Dancing, 15 Holland Park Gardens, London W14

Opportunities After O-level

R.A.D.A.	Royal Academy of Dramatic Art, 62 Gower Street, London WC1
R.A.F.	Royal Air Force, Careers Information Centre, Victory House, Kingsway, London WC2
R.A.S.	Royal Aeronautical Society, 4 Hamilton Place, London W1 Royal Agricultural Society, 35 Belgrave Square, London SW1
R.C.A.	Royal College of Art, Kensington Gore, London SW7
R.C.C.	Roman Catholic Church, The Secretary to His Grace the Archbishop of Westminster, Archbishop's House, London SW1
R.C.M.	Royal College of Music, Prince Consort Road, London SW7
R.C.V.S.	Royal College of Veterinary Surgeons, 9-10 Red Lion Square, London WC1
R.E.P.G.	Reactor Engineering and Production Group, U.K. Atomic Energy Authority, Risley, Warrington, Lancashire
R.F.S.	Royal Forestry Society, 49 Russell Square, London WC1
R.G.S.	Royal Geographical Society, Kensington Gore, London SW7
R.H.A.S.S.	Royal Highland and Agricultural Society of Scotland, 8 Eglinton Crescent, Edinburgh 12
R.H.S.	Royal Horticultural Society, Vincent Square, London SW1
R.I.A.S.	Royal Incorporation of Architects in Scotland, 15 Rutland Square, Edinburgh
R.I.B.A.	Royal Institute of British Architects, 66 Portland Place, London W1
R.I.C.	Royal Institute of Chemistry, 30 Russell Square, London WC1
R.I.C.S.	Royal Institution of Chartered Surveyors, 12 Gt George Street, Parliament Square, London SW1
R.I.N.A.	Royal Institute of Naval Architects, 10 Upper Belgrave Street, London SW1
R.M.A.S.	Royal Military Academy of Science, Shrivenham, near Swindon, Wiltshire
R.M.C.M.	Royal Manchester College of Music, Devas Street, Oxford Road, Manchester 15
R.N.	Royal Navy, Director of Naval Recruiting, The Board of Admiralty, Whitehall SW1
R.S.A.	Royal Society of Arts, 6 John Adam Street, London WC2

Organizations and their Addresses

R.S.F.S.	Royal Scottish Forestry Society, 7 Albryn Place, Edinburgh 2
R.S.H.	Royal Society of Health, 90 Buckingham Palace Road, London SW1
R.S.I.	Royal Sanitary Institute, 90 Buckingham. Palace Road, London SW1 <i>Scotland: 150 St Vincent Street, Glasgow</i>
R.S.S.	Royal Statistical Society, 21 Bentinck Street, London W1
S.A.	Society of Apothecaries, Blackfriars Lane, Queen Victoria Street, London EC4
S.A.T.	Society of Audiology Technicians, c/o St Helier Hospital, Wrythe Lane, Carshalton, Surrey
S.A.T.C.	School of Air Traffic Control, Ministry of Transport and Civil Aviation, Hurn, Hants.
S.C.	Society of Chiropodists Ltd, 8 Wimpole Street, London W1
S.C.T.T.	Scottish Council for the Training of Teachers, 140 Princes Street, Edinburgh
S.E.	Society of Engineers, Abbey House, Victoria Street, London SW1
S.E.D.	Scottish Education Department, St Andrew's House, Edinburgh 1; Dover House, Whitehall, London SW1
S.F.	Shipping Federation Ltd, 146-150 The Minories, London EC3 Society of Friends, Friends House, Euston Road, London NW1
S.H.M.	Society of Housing Managers, 13 Suffolk Street, London SW1
S.L.	School of Laundry, Hendon, London NW4
S.L.A.	School of Librarianship and Archivists, University College, Gower Street, London WC1
S.R.	Society of Radiographers, 32 Welbeck Street, London W1
S.R.G.	Society of Remedial Gymnasts, General Hospital, Northampton
S.T.A.	Student Travel Agency, 3 Endsleigh Street, London WC1
S.U.E.B.	Scottish Universities Entrance Board, Kinburn House, St Andrews, Fife
S.U.S.	Scottish Union of Students, 30 Lothian Street, Edinburgh 6
T.C.F.T.	Technical College for the Furnishing Trades, Pitfield Street, London N1

Opportunities After O-level

T.C.M.	Trinity College of Music, 11 Mandeville Place, London W1
T.I.	Textile Institute, 10 Blackfriars Street, Manchester 3
T.P.I.	Town Planning Institute, 18 Ashley Place, London SW1
T.U.C.	Trades Union Congress, Congress House, Gt Russell Street, London WC1
U.C.C.	University Correspondence College, Burlington House, Cambridge
U.C.C.A.	Universities Central Council on Admissions, 29 Tavistock Square, London WC1
U.E.R.D.	University Entrance Requirements Department, Senate House, University of London, Malet Street, London WC1
U.F.C.S.	United Free Church of Scotland, Advisory Studies, Theological College, 29 Hope Terrace, Edinburgh 4
U.K.C.T.A.	United Kingdom Commercial Travellers Association of Gt Britain and Ireland, Queen's House, 180 Tottenham Court Road, London W1
U.L.C.D.B.	University of London Commerce Degree Bureau, Senate House, Malet Street, London WC1
W.C.S.M.	Worshipful Company of Spectacle Makers, Apothecaries Hall, Blackfriars Lane, London EC4
W.E.A.	Workers Educational Association, Temple House, 27 Portman Square, London W1
W.E.S.	Women's Engineering Society, 25 Foubert Place, London W1
W.O.	War Office, Whitehall, London SW1
W.R.A.C.	Women's Royal Army Corps, War Office, Whitehall, London SW1
W.R.A.F.	Women's Royal Air Force, Careers Information Centre, Victory House, Kingsway, London WC2
W.R.N.S.	Women's Royal Naval Service, Admiralty, London, SW1
Y.E.S.T.B.	Youth Employment Service Training Board, 41 Belgrave Square, London SW1

Universities and their Addresses

ABERDEEN. The University, Aberdeen, Scotland
BELFAST. Queen's University, Belfast, Northern Ireland
BIRMINGHAM. The University, Birmingham 15, Warwickshire
BRISTOL. Senate House, The University, Bristol, Gloucestershire
CAMBRIDGE. The University Registry, The Old Schools, Cambridge
DURHAM. The University, 16 North Bailey, Durham
EAST ANGLIA. The University, Earlham Hall, Norwich, Norfolk
EDINBURGH. The University, Old College, South Bridge, Edinburgh,
Scotland
ESSEX. The University, Wivenhoe Park, Colchester, Essex
EXETER. The University, Northcote House, Queen's Drive, Exeter,
Devonshire
GLASGOW. The University, Glasgow W2, Scotland
HULL. The University, Hull, Yorkshire
KEELE. The University, Keele, Staffordshire
KENT. The University, Canterbury, Kent
LANCASTER. The University, Bailrigg House, Lancaster, Lancashire
LEEDS. The University, Leeds 2, Yorkshire
LEICESTER. The University, Leicester
LIVERPOOL. The University, Liverpool 3, Lancashire
LONDON
Bedford College, Regent's Park, NW 1
Birkbeck College, Malet Street, WC 1
Charing Cross Hospital Medical School, 62-65 Chandos Place, WC 2
External Advisory Service, Malet Street, WC 1
Goldsmiths' College of Art, New Cross, SE 14
Guy's Hospital Medical and Dental Schools, London Bridge, SE 1
Imperial College of Science and Technology, Prince Consort Road, SW 7
Institute of Archaeology, Gordon Square, WC 1
King's College, Strand, WC 2
King's College Hospital Medical School, Denmark Hill SE 5
London Hospital Medical College and Dental School, Turner Street, E 1
London School of Economics, Houghton Street, WC 2
Middlesex Hospital Medical School, Mortimer Street, W 1
Queen Elizabeth College, 61 Campden Hill Road, W 8
Queen Mary College, Mile End Road, E 1

Opportunities After O-level

Royal Dental Hospital School, Leicester Square, WC2

*Royal Free Hospital Medical School, 8 Hunter Street, Brunswick Square,
WC1*

Royal Holloway College, Englefield Green, Surrey

Royal Veterinary College, Royal College Street, NW1

St Bartholomew's Hospital Medical College, West Smithfield, EC1

St George's Hospital Medical School, Hyde Park Corner, SW1

St Mary's Hospital Medical School, Norfolk Place, W2

St Thomas's Hospital Medical School, Albert Embankment, SE1

*School of Librarianship and Archives, University College, Gower Street,
WC1*

School of Oriental and African Studies, University of London, WC1

School of Pharmacy, 29-39 Brunswick Square, WC1

Senate House, Malet Street, WC1

University College, Gower Street, WC1

University College Hospital Medical School, University Street, WC1

Westfield College, Kidderpore Avenue, Hampstead, NW3

Westminster Hospital Medical School, Horseferry Road, SW1

Wye College, Wye, nr Asford, Kent

LONDONDERRY. The University, 1A College Avenue, Londonderry, Northern Ireland

MANCHESTER. The University, Manchester 13, Lancashire

NEWCASTLE. The University, Newcastle-upon-Tyne 1, Northumberland

NOTTINGHAM. The University, Nottingham

OXFORD. The University Registry, Clarendon Buildings, Broad Street, Oxford

Oxford Colleges Admissions Office, Banbury Road, Oxford

Delegacy for Social Training, Burnett House, Wellington Square, Oxford

READING. The University, Reading, Berkshire

ST ANDREWS. The University, St Andrews, Dundee, Scotland

SHEFFIELD. The University, Sheffield 10, Yorkshire

SOUTHAMPTON. The University, Highfield, Southampton, Hampshire

STRATHCLYDE. The University, George Street, Glasgow CI, Scotland

SUSSEX. The University, Stanmer House, Brighton, Sussex

WALES

University College of Wales, Aberystwyth

University College of North Wales, Bangor

University College, Cathays Park, Cardiff

St David's College, Lampeter, Cardiganshire

University College, Singleton Park, Swansea

Welsh National School of Medicine, 34 Newport Road, Cardiff

WARWICK. The University, Coventry, Warwickshire

YORK. The University, Heslington, York

Index of Institutions

- A.B.C. Television, 257
Aberdeen, College of Education, 163; University, 24, 36, 108-10, 245, *Table VIII*
Aberystwyth University College, 24, 36, 245, *Tables III, VIII*
Actuaries, Faculty of, 252; Institute of, 190, 252
Addlestone, Art of Movement Studio, 154
Adult Education, National Institute of, 30, 215
Adult Education Centre, 296
Advertising, Institute of Practitioners in, 190, 252
Advertising Association, 190, 252
Advocates, Faculty of, 256
Agricultural Engineers, Institute of, 191, 264
Air Pilots and Air Navigators, Guild of, 190
Air Traffic Control, School of, 260
All Saints College of Education, Leeds, 136
All Saints College of Education, London, 138
Almoners, Institute of, 192, 253
Alnwick College of Education, 140
Alsager College of Education, 136
Anstey College of Physical Education, Sutton Coldfield, 153
Apothecaries, Society of, 262, 283
Archaeology, Institute of, 254
Architects, Royal Institute of British, 190, 237, 254
Architects and Surveyors, Incorporated Association of, 190
Atomic Energy Authority, 255
Auctioneers and Landed Property Agents, Incorporated Society of, 190, 255
Audiology Technicians, Society of, 255
Avery Hill College of Education, Eltham, 138, 151, 154
Aviation, Ministry of, 268

Bakery Education, National Board for, 255
Balls Park College of Education, Hertford, 134
Bangor Normal College of Education, 144, 152
Bangor University College, 24, 36, 245, *Tables III, VIII*

Opportunities After O-Level

- Bankers, Institute of**, 190, 255
Baptist Union of Great Britain and Northern Ireland, 210
Bath, Academy of Art, 155, 207; **College of Domestic Science**, 152
Battersea, College of Technology, 172, 173, 174, 177, *Tables III, VIII*;
 Training College of Domestic Science, 152
Bedford College, London University, 40, *Tables III, VIII*
Bedford, College of Education, 134; **College of Physical Education**, 153
Belfast, College of Domestic Science, 165; **University** *see* **Queen's University, Belfast**
Bennett College, 220
Bingley College of Education, 136
Birkbeck College, London, 30, 40, 41, *Tables III, VIII*
Birmingham, C.A.T., 172, 174, 177; **College of Art and Crafts**, 156, 206;
 College of Education, 132, 151; and **Midland Institute of Music**, 158,
 209, 237; **University**, 24, 35, 121, 150, 245, *Tables III, VIII*
Bishop Grosseteste College of Education, 142
Bishop Otter College of Education, Chichester, 142, 154
Bognor Regis College of Education, 144
Bolton Technical Training College, 130, 158
Booksellers Association, 191, 256
Boot and Shoe Institution, British, 191
Bordesley Day College of Education, 132, 149, 150
Borough Polytechnic, 188, 196
Borough Road College of Education, Isleworth, 138, 154, 160
Bradford Institute of Technology, 174
Brentford Day College of Education, 134
Brentwood Training College, 150
Bretton Hall, Wakefield, 136, 155
Brewing, Institute of, 191, 257
Brighton, College of Arts and Crafts, 156, 206; **College of Education**, 138;
 College of Technology, 196; **University**, *see* **Sussex University**
Bristol, College of Science and Technology, 173, 174, 177; **Old Vic**
 Theatre School, 209; **University**, 24, 35, 245, *Tables III, VIII*
Britannia Royal Naval College, Dartmouth, 289
British Broadcasting Corporation, 257
British Council of Churches, 212, 259
British Medical Association, 277
British School of Malting and Brewing, 257
British School of Osteopathy, 282
Brixton School of Building, 188, 189
Brunel College, London, 174, 177
Builders, Institute of, 191
Building Societies Institute, 191, 257
Bulmershe College of Education, Reading, 142

Index of Institutions

- Caerlebn College of Education, Newport, 144, 151**
Calder College of Domestic Science, Liverpool, 152
Camberwell School of Arts and Crafts, 206
Cambridge University, 23, 4, 27, 28, 31, 32, 34, 35, 39, 100-1, 231, 234, 245, Table VIII
Canterbury, College of Art, 205, University, see Kent University
Capitol Radio-Engineering Institute, 222
Cardiff, C.A.I., 173, 175, 177, College of Art, 156, 206, College of Education, 144, 154, College of Music and Drama, 157, 209, Training College of Domestic Arts, 152, University College, 24, 36, 122, 245, Tables III, VIII
Carnegie College of Physical Education, Leeds, 153
Cartrefle College of Education, Wrexham, 144
Catholic Workers College, Oxford, 216
Cavendish Square College, London, 146
Central Advisory Council for the Ministry (C of I), 210
Central Register and Clothing House, 129, 168
Central School of Arts and Crafts, London, 206
Central School of Speech and Drama, London, 156, 208
Ceramics, Institute of, 258
Certified and Corporate Accountants, Association of, 190
Chambers College, 222
Charing Cross Hospital Medical School, 40, Table III
Charlotte Mason College of Education, Ambleside, 140
Chartered Accountants, Institute of, 190, 252
Chartered Auctioneers and Estate Agents Institute of, 190, 255, 274
Chartered Insurance Institute, 192, 273
Chartered Land Agents Society, 190, 274
Chartered Surveyors, Royal Institute of, 272, 274, 293, 295
Chelsea College of Physical Education, London, 154
Chelsea, College of Science and Technology, 173, 175, 177, Table III; School of Art, 206
Cheltenham College of Art, 205
Chemical Engineers, Institute of, 191, 264
Chemistry, Royal Institute of, 191, 237, 256, 258
Chester College of Education, 138, 154
Child Care, Central Training Council in, 259
Chiropodists, Institute of, 191, Society of, 191, 259
Chorley Day College of Education, 1, 150
Christ's College of Education, Liverpool, 138
Christchurch College of Education, Canterbury, 138
Church of Ireland, 212
Church in Wales, 212

Opportunities After O-Level

- City and Guilds of London Institute, 266, 271, 272, 274, 278, 282, 283, 284, 285, 287, 290
- City of London College, 292
- Civil Engineers, Institute of, 191, 265
- Civil Service Commission, 258, 260
- Clerks of Works, Institute of, 191
- Clothing Institute, 195
- Colchester University, *see* Essex University
- Coleg Harlech, 216, 246
- Coleman Street Ward School, 292
- College of the Sea, 221, 226
- Coloma College of Education, West Wickham, 138
- Commercial and Industrial Education, British Association for, 273
- Commercial Travellers Association, United Kingdom, 290
- Company Accountants, Institute of, 190
- Congregational Union of England and Wales, 211
- Constantine C.T., Middlesbrough, 196
- Cooperative College, Loughborough, 216
- Cornelia Connely College of Education, Birmingham, 132
- Cost and Works Accountants, Institute of, 190
- Coventry, College of Art, 206; College of Education, 132, 151, 154
- Craiglockhart College of Education, Edinburgh, 163
- Cranfield College of Aeronautics, 189, 253
- Crewe College of Education, 136
- Culham College of Education, Oxford, 142, 151
- Dagenham Technical College and School of Art, 188
- Dalcroze Society Training Centre, 157, 208
- Darlington College of Education, 134
- Dartford College of Physical Education, 153
- Dartington, College and Art Centre, Totnes, 208; Music School, 157
- Decorators and Interior Designers, Incorporated Institute of, 273
- De La Salle College of Education, 140
- Dental Association, British, 191
- Derby Diocesan College of Education, 142, 153
- Didsbury College of Education, 140
- Dietetic Association, British, 191, 262
- Digby Stuart College of Education, 138, 152, 153
- Dispensing Opticians, Association of, 281, 282
- Doncaster College of Education, 144
- Draughtsmen and Allied Technicians Association, 263
- Dudley College of Education, 132
- Duncan of Jordanstone College of Art, Dundee, 162

Index of Institutions

- Dundee, College of Education, 163, Institute of Art and Technology, 162, 188, 196
 Dunfermline College of Physical Education, 163
 Durham University, 24, 35, 41, 130, 155, 159, 219, 245, *Tables* III, VIII
- East Anglia Advisory Council, 187
 East Anglia University, 25, 27, 35, 102, *Table* VIII
 Eastbourne College of Education, 138
 Easthampstead Park College of Education, 142
 Eaton Hall College of Education, Retford, 142
 Edge Hill College of Education Ormskirk, 138
 Edinburgh, College of Art, 162, College of Domestic Science, 163, and
 East of Scotland College of Agriculture, 212, University, 24, 36,
 108 12, 245 *Table* VIII
 Education, Institute of 156
 Education for the Ministry, Committee on (Church of Scotland), 211
 Education and Science Department of 149, 234, 297
 Electrical Association for Women, 261
 Electrical Engineers, Institute of, 191, 265
 Electricity Council, 263
 Elizabeth Gaskell College of Education, 140, 152
 EMI Institutes, 222
 Endsleigh College of Education, Hull 134, 154
 Enfield C.T., 196
 Engineering, National Institute of, 227
 Engineering Designers, Institute of, 191, 263
 Engineering Technology, British Institute of, 220 222
 Engineers, Society of, 192
 Episcopalian Church in Scotland, 212
 Essex University, 35, 102, *Table* VIII
 Exeter, College of Art, 205, University, 24, 35, 121, 245, *Tables* III, VIII
 Export, Institute of, 192, 269
- Farnborough Technical College 190
 Fircroft College, Birmingham, 216
 Food Manufacturers Federation 269
 Forestry Commission, 270
 Froebel Educational Institute, 138
 Fuel, Institute of, 270
 Furzedown College of Education London, 138
- Garnett College, 130, 158
 Gas Council, 261
 Gas Engineers, Institute of, 191, 266

Opportunities After O-Level

- General Dental Council, 261
General and Family Caseworkers, Association of, 194, 269
General Medical Council, 263
General Nursing Council, 193, 280
General Optical Council, 282
Gipsy Hill College of Education, Kingston, 138
Glamorgan, College of Education, Barry, 144, 154, College of Technology, 196
Glasgow, College of Domestic Science, 16, School of Art, 162, University 21, 36, 108-9, 112, 246, *Table VII*
Glass Manufacturers Federation, 271
Glen Byam Shaw School of Drawing and Painting, 204
Gloucester College of Education, 132, 152
Goldsmiths' College of Education, London, 130, 138, 149, 156, 160
Goldsmiths' College School of Art, 206
Greenmount Agricultural College, Muckamore, 213
Grocers, Institute of Certified, 270
Guildhall School of Music and Drama, 156, 157, 208-237
Guy's Hospital Medical School, 40 *Table III*
- Hardressers' Registration Council, 271
Hamble College of Air Training Southampton, 189
Harper Adams Agricultural College, Newport 213
Hathfield C.T., 188, 196
Hawkwood College, Stroud, 216
Heating and Ventilation Engineers, Institute of, 191
Hereford College of Education 132
Heriot-Watt College, Edinburgh, 162-165, 196
Highway Engineers, Institute of 192
High Wycombe C.E.F., 205
Hillcroft College, Surbiton, 216, 246
Hockerill College of Education, Bishop's Cleeve, 134
Homerton College of Education Cambridge, 134
Hornsey College of Art, 155, 206
Horological Institute, British, 290
Hospital Administrators, Institute of, 192, 272
Hotel and Catering Institute, 192, 258
Housing, Institute of, 192, 272
Housing Managers, Society of, 192
Huddersfield, C.T., 189, 196, Training College for Technical Teachers, 130, 159
Hull University, 24, 35, 122, 246, *Tables III, VIII*
- Ilkley College of Housecraft, 152

Index of Institutions

- Illuminating Engineering Society, 266**
Immaculate Conception College of Education, Southampton, 144
I. M. Marsh College of Physical Education, Liverpool, 153
Imperial College, London, 40, 270, *Tables III, VIII*
Industrial Transport Association, 288
Information Scientists, Institute of, 276
Insurance Brokers, Corporation of, 192
Institutional Management Association, 262
International Correspondence Schools, 220, 222
Iron and Steel Federation, British, 274
- James Graham Day College of Education, Leeds, 136, 150**
Jewish Religion, 212
Jews' College, 116
Jordanhill College of Education, Glasgow, 163
Journalists, National Council for the Training of, 274, 285
- Keele University, 25, 27, 35, 102-3, 246, *Tables III, VIII***
Kenton Lodge College of Education, Newcastle, 140
Kent University, 25, 27, 35, 103
Kesteven College of Education, 142
King Alfred's College of Education, Winchester, 144, 147
King Edward VII University School of Fine Art, 155
King's College, London, 40, *Tables III, VIII*
King's College Hospital Medical School, 40, *Table III*
Kingston-upon-Hull, College of Education, 134; Regional College of Art and Crafts, 207
Kingston-upon-Thames, C.T., 189, 196; School of Art, 206
Kirkby Fields College of Education, 138
- Laban Art of Movement Centre, 209**
Lady Mabel College of Physical Education, Rotherham, 153
Lampeter, St David's College, 36, *Tables III, VIII*
Lancaster, College of Education, 140; University, 25, 35, 104
Lanchester C.T., Coventry, 189, 196
Landscape Artists, Institute of, 190, 275
Launderers, Institute of British, 275
Laundry, School of, 275
Law Society, 193, 292
Law Society of Scotland, 292
Leeds, College of Art, 156, 207; College of Education, 136, 147, 151, 154; College of Technology, 189; University, 24, 35, 122, 246, *Tables III, VIII*
Leicester, College of Art, 155, 205; College of Education, 136, 151;

Opportunities After O-Level

- College of Technology, 188; Domestic Science Training College, 152; University, 24, 35, 41, 246, *Tables III, VIII*
- Library Association, 193, 275
- Linguists, Institute of, 193
- Liverpool, College of Art, 155, 205; College of Building, 188; College of Commerce, 184; College of Education, 138; College of Technology, 184, 188, 196; University, 24, 35, 122, 159, 246, *Tables III, VIII*
- Local Authorities, National Joint Council for, 276
- Local Government Examinations Board, 276
- Locomotive Engineers, Institute of, 192, 268
- London, Academy of Music and Dramatic Art, 209; College for the Distributive Trades, 189, 203-4; College of Estate Management, 119, 274; College of Music, 157, 208, 237; College of Printing, 206; College of Speech Therapists, 292; and Home Counties Advisory Council, 187; Hospital Medical School, 40, *Table III*; School of Economics, 30, 40, 246, *Tables III, VIII*; School of Film Technique, 269; School of Librarianship and Archives, 254, 275; School of Medical Photography, 277; Transport Executive, 288; University, 24, 28, 35, 38, 39, 159, 160, 219, 231, 246, *Tables III, VIII*. *See also* individual colleges
- Londonderry University College, 36, 108-9, 115
- Loughborough, C.A.T., 172, 175, 177; College of Art, 206; College of Education, 142, 154
- Loughry Agricultural College, New Cookstown, 213
- Madeley College, Staffs., 130, 136, 152, 154
- Maidstone College of Art, 205
- Management, British Institute of, 193
- Management Association, Institutional, 193
- Manchester, College of Art and Design, 205; College of Commerce, 296; Day College of Education, 140, 150, 151; Northern School of Music, 156; University, 24, 36, 151, 163, 246, *Tables III, VIII*
- Manresa College of Education, London, 138
- Margaret McMillan College of Education, Bradford, 136
- Maria Assumpta College of Education, London, 138
- Maria Grey College of Education, Twickenham, 138, 151
- Marine Engineers, Institute of, 192, 267
- Marketing and Sales Management, Institute of, 290
- Market Research Society, 276
- Mary Ward College of Education, 142
- Master Printers, British Federation of, 194, 286
- Mathematical Association, 276
- Mather Day College of Education, 140, 149, 150
- Matlock College of Education, 142, 151
- Matthay School of Music, 209

- Meat, Institute of, 193**
- Mechanical Engineers, Institute of, 192, 264**
- Medical Auxiliaries, Board of, 259**
- Medical Laboratory Technology, Institute of, 193, 277**
- Metallurgists, Institute of, 193, 278**
- Meteorological Office, 278**
- Methodist Ministerial Training Department, 211**
- Metropolitan College, 220, 222, 224, 226**
- Middlesbrough Day College of Education, 134, 149, 150**
- Middlesex Hospital Medical School, 40, *Table III***
- Mid-Essex Technical College, Chelmsford, 196**
- Midlands, East, Advisory Council, 187**
- Midlands, West, Advisory Council, 187**
- Midwives Board, Central, 278**
- Mining Engineers, Institute of, 192**
- Mining and Metallurgy, Institute of, 192, 267**
- Moray House College of Education, 163**
- Motor Industry, Institute of the, 193, 264**
- Mount Pleasant College of Education, Liverpool, 138, 159**
- Municipal College of Art, Bournemouth, 155**
- Municipal Engineers, Institute of, 192, 295**
- Municipal Treasurers and Accountants, Institute of, 272**
- Museum Association, 279**
- Musical Instrument Technology, Institute of, 279**

- National Coal Board, 293**
- National College of Agricultural Engineering, Silsbee, 185, 189, 264**
- National College of Food Technology, Weybridge, 185, 189, 269**
- National College for Heating, Ventilating, Refrigerating, and Fan Engineering, London, 189, 266**
- National College of Rubber Technology, London, 189, 237, 289**
- National Council for Diplomas in Art and Design, 202**
- National Extension College, 221, 226-7**
- National Foundry College, Wolverhampton, 189**
- National Froebel Foundation, 147**
- National Leathersellers College, 275**
- National and Local Government Officers Association, 221, 223**
- Naval Architects, Royal Institute of, 280**
- Naval Recruiting, Director of, 289**
- Neville's Cross College of Education, Durham, 134, 154, 159**
- Newbattle Abbey, Dalkeith, 216**
- Newcastle, College of Art and Industrial Design, 206; Day College of Education, 140, 150; Department of Education, 156; University, 24, 36, 41, 246, *Tables III, VIII*; University Department of Fine Art, 204**

Opportunities After O-Level

- New College of Speech and Drama, London, 157, 208
Newland Park College of Education, 142
Newport College of Art, 206
Newton Park College of Education, Bath, 134
Nonington College of Physical Education, 153
Northampton C A T, London, 175, 177, *Table III*
North Buckinghamshire College of Education, 142
Northern Advisory Council, 188
Northern Counties College of Education, Newcastle, 142, 152
Northern Polytechnic, 188, 189, 196, *Table III*
Northern School of Music, 157, 208, 237
North Riding College of Education, Scarborough, 136
North of Scotland College of Agriculture, Aberdeen, 212
North Staffordshire C I, 196
Northumberland College of Education, Ponteland, 140
North Western Advisory Council, 188
Norwich, College of Education, 134, University see East Anglia University
Nottingham, College of Art and Crafts, 206 College of Education, 142
College of Technology, 189-196 University, 24, 36-246, *Tables III, VIII*
Notre Dame College of Education, Glasgow, 163
Nursery Examination Board, National 278-280

Oastler Day College of Education, Huddersfield 136, 149, 150
Occupational Therapist Association of, 193, 250
Office Management Institute of, 193
Optical Association, British, 193, 281-282
Oriental and African Studies, School of, London, 40, *Tables III, VIII*
Orthoptics Board, British, 282
Oxford University, 23-4, 26-7, 28-31, 32, 34, 36, 39, 100, 231, 234, 246
Table VIII

Packaging, Institute of, 193
Padgate College of Education, Manchester, 140
Paint Apprenticeship Council, 282
Paisley Technical College, 188
Patent Agents, Chartered Institute of, 194, 282
Patent Office, 283
Personnel Management, Institute of, 193, 283
Pharmaceutical Society, 194, 283
Pharmacy, School of, London, 40, *Table III*
Philippa Fawcett College of Education, London, 138
Physical Education Association, 155, 284

Index of Institutions

- Physical Society, 284**
Physics, Institute of, 194, 284, 290
Physiotherapists, Chartered Society of, 194, 284, Faculty of, 284
Photographers, Institute of British, 194, 277, 283, 285
Plastics Institute, 194, 285
Plymouth C T, 188
Police Recruiting Department, 285
Polytechnic, The, London, 196
Portsmouth, College of Art, 205, College of Commerce, 184, College of Education, 144, College of Technology, 184, 188, 196
Poulton College of Education, 145, 149, 150
Probation Advisory and Training Board, 286
Production Engineers, Institute of, 197
Pre-bbyterian Church of England, 217
Psychiatric Social Workers, Association of, 279
Psychological Society, British, 286
Public Cleansing, Institute of, 286
Public Health Inspector Board, 287
Public Relations, Institute of, 287
Publishers Association, 256
Purchasing Officers Association, 194, 287
- Quantity Surveyors, Institute of, 195**
Quarrying, Institute of, 194, 287
Queen Elizabeth College, London, 40, 151, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000
Queen Mary College, London, 40, Table III
Queen's University, Belfast, 24, 30, 36, 178, 179, 113, 14, 164, 245, Table VIII
- Radbrook College, Shrewsbury, 152**
Radio Engineers, British Institution of, 191, 268
Radiographers, Society of, 194, 288
Rachel MacMillan College of Education, London, 138
Rapid Results College, 220, 221, 226
Ravensbourne College of Art, Bromley, 205
Reading, University, 24, 36, 240, Table III, VIII, University School of Fine Art, 204
Redland College of Education, Bristol, 134, 151
Remedial Gymnasts, Society of, 288
Regional College of Art, Manchester, 155
Richmond College, London, Table III
Ripon College of Education, 136
Robert Gordon's Technical College, Aberdeen, 162, 163, 188, 196
Rolle College of Education, Exeter, 134

Opportunities After O-Level

Roman Catholic Church, 211-12

Rose Bruford Training College, 156, 208

Royal Academy of Dancing, 209, 261

Royal Academy of Dramatic Art, 208, 209

Royal Academy of Music, 157, 209, 237, *Table III*

Royal Academy Schools of Painting, Sculpture, and Architecture, 204

Royal Aeronautical Society, 264

Royal Agricultural College, Cirencester, 212, 274

Royal Agricultural Society, 190

Royal Air Force Information Centre, 289

Royal Air Force Technical College, Henlow, 196

Royal Ballet School, 209

Royal College of Art, 204, 237, 258, 263

Royal College of Music, 157, 209, 237, *Table III*

Royal College of Science and Technology, 269

Royal College of Veterinary Surgeons, 195, 253, 296

Royal Dental Hospital Medical School, 40, *Table III*

Royal Forestry Society, 270

Royal Free Hospital Medical School, 40, *Table III*

Royal Holloway College, London, 40, *Table III*

Royal Horticultural Society, 192, 272, 274

Royal Manchester School of Music, 157, 237

Royal Military Academy, 254

Royal Naval College, Greenwich, 280

Royal Naval Engineering College, Plymouth, 280

Royal Scottish Academy of Music, Glasgow, 158, 163, 209

Royal Scottish Forestry Society, 270

Royal Society of Arts, 190

Royal Society of Health, 192, 271, 280, 287

Royal Statistical Society, 292

Royal Veterinary College, London, 40, *Table III*

Rubber Industry, Institute of the, 194, 289

Rugby College of Engineering Technology, 189, 196

Ruskin College, Oxford, 216, 246

Rutherford C.T., Newcastle, 189, 196

Saffron Walden College of Education, 134

St Andrews University, 24, 36, 108-9, 112-13, 246, *Table VIII*

St Bartholomew's Hospital Medical School, 40, *Table III*

St David's College, *see* Lampeter

St Gabriel's College of Education, London, 140

St George's Hospital Medical School, 40

St Hild's College of Education, Durham, 139, 159

St John's College of Education, York, 134, 154

Index of Institutions

- St Joseph's Training College, Belfast, 165
 St Katherine's College of Education, Liverpool, 136
 St Luke's College of Education, Exeter, 134, 154
 St Mark and St John College of Education, London, 140, 160
 St Martin's School of Art, London, 206
 St Mary's College of Education, Bangor, 144
 St Mary's College of Education, Cheltenham 132, 154
 St Mary's College of Education Newcastle, 142
 St Mary's College of Education, Wickenhurst, 140, 151, 154, 160
 St Mary's Hospital Medical School, 40, *Table III*
 St Mary's Training College Belfast 165
 St Matthias College of Education, Farnham 132
 St Oswald's College of Education Chester, 134, 152
 St Paul's College of Education Cheltenham, 132, 154
 St Paul's College of Education Rugby, 132
 St Peter's College of Education Salford 132
 St Thomas's Hospital Medical School, 40, *Table III*
 Salford Royal College 137, 157
 Salisbury College of Education 134
 Sanitary Association of Scotland Royal, 271, 287
 School of Commerce 222
 Science Technology Institute 1, 134, 190
 Scottish Advisory Council, 158
 Scottish College of Commerce Glasgow 16, 188, 196
 Scottish Council for the Training of Teachers, 163
 Scottish Hotel School 159
 Scottish Union of Students 244
 Scottish Woollen Technical College Galashiels, 162, 188, 189, 196
 Seafarer Education Service 226
 Seaford Training College of Hotelierist, 152
 Seale Havn Agricultural College Newton Abbot 212
 Secretaries Chartered Institute of, 191, 291
 Secretaries, Corporation of 191, 291
 Sedgley Park College of Education, Prestwick 140
 Sheffield, College of Art 156, 207 College of Education, 144, 151;
 University, 24, 36, 246, *Table III*, VIII
 Shenstone College of Education, Bromsgrove 132
 Ship Brokers, Institute of Chartered 194, 291
 Shipping Federation, 277
 Shoreditch College of Education, Farnham, 140
 Shuttleworth College, Biggleswade, 212
 Sidney Webb Day College of Education, London, 140, 150, 152
 Sir John Cass College, London, 188, *Table III*
 Slade School of Fine Art, 204

Opportunities After O-Level

Slavonic and Eastern European Studies, School of, *Tables III, VIII*
Social Services, National Council of, 291
Social Training, Delegation for, 283
Society of Friends, 212
Southampton University, 24, 36, 122, 246, *Tables III, VIII*
Southern Advisory Council, 188
Southlands College of Education, London, 140
South Western Advisory Council, 188
Special Libraries and Information Bureaux Association of, 275
Spectacle Maker, Worshipful Company of, 281
Statisticians, Institute of, 195
Stock Exchange Council of the, 292
Stockwell College of Education Bromley, 140
Stoke on Trent College of Art, Butterm, 206, College of Technology, 189
Strabane Agricultural College, 213
Stranmillis College of Education Belfast, 144, 165, 236
Strathclyde University, 36, 189, 113, *Table VIII*
Structural Engineers Institute of, 192
Student Travel Agency, 167
Studley College Warwick, 213
Summerfield College of Education Piddington, 132
Sunderland College of Art and Design, College of Education, 134, Technical College, 188, 196
Surgical Technicians, Institute of British, 206
Sussex University, 24, 36, 104, 5
Swansea College of Education, 144, School of Art and Craft, 156, University College, 24, 36, 246, *Tables III, VIII*
Swinton District College of Education, 144, 156

Textile Institute, 195, 295
Thornbridge Hall College of Education, Bikesell, 144
Tonic Sol Fa College of Music, 209
Totley Hall Training College of Housecraft, Sheffield, 152, 144
Town Planning Institute, 190, 205
Trades Union Congress Educational Trust, 247
Transport, Institute of, 288
Transport and Civil Aviation, Ministry of, 259, 277
Travel Agents, Institute of, 296
Treforest C.T., Glamorganhire, 189
Trent Park College of Education, Barnet, 140, 154
Trinity College of Education Carmarthen, 144
Trinity College of Education, Yorkshire, 136
Trinity College of Music, 157, 209, 237, *Table III*

Index of Institutions

- Ulster College of Physical Education, 165**
United Free Church of Scotland, 212
Universities, civic, 24; new, 25, 27
University College, London, 40, *Tables III, VIII*
University College Hospital Medical School, 40, *Table III*
University Correspondence College, 220, 221, 223, 224
University of London Commerce Degree Bureau, 221, 223, 224

Venerable Bede College of Education, Durham, 134, 159

Wales, University of, 24, 36, 246, *Tables III, VIII*; School of Medicine, 36. *See also* Aberystwyth, Bangor, Cardiff, Swansea
Wall Hall College of Education, Aldenham, 134
Warwick University, 25, 36, 105-6, *Table VIII*
Water Engineers, Institution of, 268
Webber-Douglas School of Singing and Dramatic Art, 209
Welding, Institute of, 268
Welsh Joint Education Committee, 188
Wentworth Castle College of Education, Barnsley, 144
West of England College of Art, Bristol, 155, 205
Westfield College, London, 40, *Table III*
West Ham C.T., 188, *Tables III, VIII*
Westhill College of Education, Birmingham, 132
West Midlands College of Education, Walsall, 132
Westminster College of Commerce, 184
Westminster College of Education, 142
Westminster Hospital Medical School, 40
West of Scotland Agricultural College, 213
Weymouth College of Education, 144
Whitelands College of Education, London, 140
Wimbledon School of Art, 206
Winchester School of Arts and Crafts, 205
Wolsey Hall, 220, 223, 224
Wolverhampton, College of Art, 206; Day College of Education, 132, 150; and Staffordshire C.T., 196; Technical Teachers College, 130, 158
Women's Engineering Society, 192
Women's Ministry in the Church, Council for, 210
Woodbrooke College, Birmingham, 216
Woolwich Polytechnic, 188, 196, *Table III*
Worcester College of Education, 132, 152
Workers' Educational Association, 247
Works Managers, Institute of, 193
Works Study, Institute of, 193
Wye College, Kent (Agriculture), 40, *Table III*

Opportunities After O-Level

Yorkshire Advisory Council, 188

Yorkshire Training College of Housecraft, 152

York University, 25, 36, 106-7, *Tables* III, VIII

Youth Employment Service Training Board, 296

Youth Leaders, National College for Training, 155

Index of Courses

Abbreviations:

C.A.T. *Colleges of Advanced Technology*

C.C. *Correspondence Courses*

C.T. *Colleges of Technology*

T.T. *Teacher Training*

Univ. *University Courses*

Accountancy, 213; C.A.T., 174;
C.C., 222, 223; T.T., 133;
Univ., 108, 118

Administration, C.A.T., 174;
Univ., 108

Public, C.C., 223

Adult Colleges, 215-16

Advertising, C.C., 222

African Studies, Univ., 115

Agricultural Sciences, Univ., 95-6

Agriculture, 212-13; C.C., 222;
Univ., 94, 100, 101, 108, 111,
114, 119

Agronomy, Univ., 119

American Literature, Univ., 106
Studies, Univ., 103, 104, 115

Anatomy, Univ., 68, 101, 108, 113,
119

Anglo-Saxon, Univ., 101

Animal Health, 213

Husbandry, 213

Production, Univ., 119

Anthropology, Univ., 101, 108, 119

Arabic, Univ., 100, 109, 110, 111,
112, 115

Aramaic, Univ., 115

Archaeology, Univ., 101, 108, 111,
115

Archery, T.T., 154

Architectural Construction, Univ.,
108

Design, Univ., 108

Architecture, 214-15, 237; C.A.T.,
174, 175; C.T. Diploma, 196;
Univ., 43-4, 101, 115

Art, 201-7, 215; C.C., 223;
Diploma Courses, 201, 205-7,
237; Pre-diploma Course, 202-
3; T.T., 139, 155-6, 162;
Vocational Courses, 203

Fine, Univ., 47, 111, 115

History of, Univ., 47, 108, 115

Art and Craft, T.T., 133, 137, 145,
164

Assyrian, Univ., 115

Astronomy, Univ., 108, 112, 114,
119

Athletics, T.T., 154

Auctioneering and Estate Agency,
C.C., 22

Austronesian Languages, Univ.,
115

Bacteriology, Univ., 68, 108, 111,
119

Banking, Univ., 108; C.C., 222, 223

Opportunities After O-Level

- Bengali, Univ., 115**
Biblical Studies, Univ., 61-2. See also Theology
Biochemistry, Univ., 69, 100, 102, 108, 111, 119
 Applied, C.A.T., 174, 175;
 C.T. Diploma, 196
Biological Sciences, C.A.T., 174; Univ., 105, 108
Biology, 213; T.T., 132, 134, 135, 136, 138, 140, 142, 143, 144, 147, 160; Univ., 103, 104, 106, 108, 111
 Applied, C.A.T., 174, 175
 Human, T.T., 137
 Marine, Univ., 109
 Social, T.T., 139, 141
Biophysics, Univ., 102, 119
Blind children, T.T., 150, 163
Bookcraft, T.T., 137, 139
Book-keeping, C.C., 222
Botany, C.A.T., 175, 238; T.T., 141, 160; Univ., 70-1, 100, 108, 114, 120, 121
 Experimental, Univ., 102
Building, C.A.T., 174, 175; C.C., 222; C.T. Diploma, 197; Univ., 120
 Economics and Measurement, C.A.T., 174
 Technology, C.A.T., 174
Building-Society Work, C.C., 222
Bulgarian, Univ., 115
Burmese, Univ., 115
Business Administration, C.A.T., 173, 175
 Mathematics, C.T. Diploma, 197
 Operation and Control, C.A.T., 175
 Social Science, C.A.T., 174
 Studies, C.C., 223; C.T. Diploma, 197; Univ., 108, 115
C.A.T. Courses, 173-7
C.T. Courses, 181-7
Canoeing, T.T., 154
Catering, C.C., 222
Celtic, Univ., 62, 108, 113, 114, 115
Central European Regional Studies, Univ., 116
Ceramics, 205, 206; Univ., 108, 116, 120
 Technology, C.T. Diploma, 197
Chemical Technology, C.A.T., 174; C.T. Diploma, 196
Chemistry, 213, 237; C.A.T., 174, 175, 238; T.T., 132, 134, 136, 138, 140, 142, 144, 147, 160; Univ., 71-3, 100, 103, 104, 105, 106, 108, 111, 112, 114, 120
 Applied, C.A.T., 174; C.T. Diploma, 196; Univ., 108, 114
 Colour, C.A.T., 174; Univ., 108
 Industrial; C.A.T., 174, 175; C.T. Diploma, 197
 Technical, Univ., 108
Chinese, Univ., 100, 116
Civil Service, C.C., 222, 223
Classics, Univ., 44, 59, 101, 104. See also Greek, Latin
Commerce, T.T., 133, 135, 137, 139, 141, 145; Univ., 63
Commerce Diploma Courses, 162
Commercial Administration, C.T. Diploma, 197
Commercial Subjects, T.T., 164
Commonwealth Studies, Univ., 116
Computer Technology, see Engineering
Cookery, T.T., 153
Cooperative Movements, 216
Coptic, Univ., 116
Correspondence Courses, 219-27
Cost Accountancy, C.C., 222

Index of Courses

Costing, C.C., 223
Crafts, Heavy, T.T., 139
 Light, T.T., 164
 Men's, T.T., 139, 164
 See also Art and Craft
Crop Husbandry, 213
Cybernetics, C.A.T., 175; Univ., 120
Cytology, Univ., 102
Czech, Univ., 112
 and Slovak Language and Literature, Univ., 116

Dairying, Univ., 94-5, 108
Dance, 207-9; T.T., 133, 135, 137, 141, 143, 154
 Educational, T.T., 135, 154, 155
Deaf children, T.T., 151, 163
Dental Surgery, Univ., 111
Dentistry, Univ., 98 9, 108, 113, 114
Design, Diploma Course in Art and, 201-2
 Sanderson's Training School for Designers, 204-5
Design, Graphic, 205, 206, 207.
 See also Art
 Industrial (Eng.), 205, 206, 207
 Interior, 205, 206
Dietetics, C.A.T., 174; Univ., 120
Diploma Courses, Art, 201-7; C.A.T., 171, 176; C.T., 181-2, 196-7; Music, Drama and Dancing, 207-8
 Subjects, 162-3, 175
Divinity, T.T., 132, 133, 134, 136, 138, 139, 140, 142, 144
Domestic Science, Diploma Course, T.T., 163; T.T., 152; Univ., 120
Drama, 207-9; T.T., 133, 135, 137, 139, 141, 145, 155, 156-7, 163, 164
Draughtsmanship, C.C., 222

Dutch, Univ., 116

Economics, 213; C.A.T., 174, 175, 238; C.T. Diploma, 197; Extra-Mural Board, 245; National Extension College, 227; T.T., 133, 135; Univ., 63-4, 100, 101, 103, 104, 105, 108, 114, 115, 119
 Home, T.T., 137, 139, 143
 Industrial, C.T. Diploma, 197; Univ., 108
Economic Studies, 216
Education, C.C., 223; T.T., 135, 137, 141, 158-9; Univ., 108, 116
 History of, T.T., 158
 Psychology of, T.T., 143
Educational Philosophy and Psychology, T.T., 135, 138
Egyptian, Univ., 100
Egyptology, Univ., 116
Electrical Sciences, Univ., 101
Electronics, C.A.T., 175; C.C., 222; Univ., 105, 108
Embroidery, 206
Engineering, Aeronautical, C.A.T., 174, 175; C.C., 222; C.T. Diploma, 197; Univ., 86, 108
 Airline, C.A.T., 175
 Architectural Production, Univ., 109
 Automobile, C.A.T., 175
 Automotive, C.A.T., 175
 Chemical, C.A.T., 174, 175; C.T. Diploma, 197; Univ., 87, 101, 108
 Civil, C.A.T., 174, 175; C.T. Diploma, 197; Univ., 87-9, 109
 Computer Technology, C.C., 222
 Control, C.A.T., 174, 175
 Electrical, C.A.T., 174, 175; C.T. Diploma, 197; Univ., 89-90, 105, 109, 120

Opportunities After O-Level

- Electronic, C.C., 222; Univ., 120
 Environmental Control, Univ., 108
 Fuel, Univ., 120
 General, 213; C.A.T., 174, 175, 238; C.C., 222; Univ., 111, 112
 Industrial, C.A.T., 175
 Instrumental, C.A.T., 175
 Marine, C.A.T., 174; Univ., 86, 108
 Mechanical, C.A.T., 174, 175; C.T. Diploma, 197; Univ., 90-91, 108
 Metallurgy, C.A.T., 174, 175
 Mining, C.T. Diploma, 197; Univ., 108, 109, 111
 Mining and Minerals, Univ., 92-4
 Municipal, C.C., 223; Univ., 120
 Naval, Univ., 109
 Navigational, C.C., 222
 Nuclear, C.C., 222
 Production, C.A.T., 174, 175; C.T. Diploma, 197; Univ., 120
 Public Health, C.C., 223; Univ., 120
 Science, Univ., 100, 106
 Servomechanisms, C.C., 222
 Space Electronics, C.C., 222
 Structural, C.A.T., 175; Univ., 109, 120
 Textile, Univ., 120
 English, Extra-Mural Board, 245; National Extension College, 227; T.T., 133, 158, 160; Univ., 44-6, 101, 102, 104, 105, 108, 111, 112, 114, 116
 Language, Univ., 100
 Literature, Univ., 103, 104, 105, 116
 Studies, Univ., 104
 Environmental Health, C.A.T., 174
 Environmental Studies, T.T., 133, 137, 141; Univ., 104
 Yorkshire, T.T., 137
 Ergonomics, C.A.T., 175
 Estate Management, Univ., 119
 European Studies, Univ., 102, 104
 Export, C.C., 223
 Farming, 213-14
 Farm Management, 213
 Mechanization, 213
 Fashion, 205, 206
 Fibre Science, Univ., 108
 Field Sciences, T.T., 133
 Fieldwork, T.T., 135
 Film and Television, T.T., 135
 Finance, C.C., 223
 Financial Administration, C.T. Diploma, 197
 Fine Arts, Univ., 47, 100. *See also* Art
 First Degree Courses, English and Welsh Universities, 42-99, 115-21
 New Universities, 102-7
 Oxford and Cambridge, 100-1, 115-21
 Scottish and Northern Irish Universities, 108-9, 115-21
 Unusual, 115-21
 Food Science, Univ., 96, 108, 109
 Forestry, Univ., 100, 109, 111, 120
 Foreign Novel, T.T., 137
 Foundry Technology, C.A.T., 175
 French, T.T., 132, 134, 136, 137, 138, 140, 142, 144, 160; Univ., 47-9, 100, 103, 104, 105, 108, 110, 112, 114, 116
 Medieval, Univ., 114
 Studies, Univ., 104, 105
 Froebel Course, 133, 139, 147
 Fuel Science, Univ., 120
 Technology, Univ., 109

Furniture Design, 205, 206, 207

Gaelic, Univ, 112

Gamcs, F T, 154

Gardening, I I, 141

Genetics, Univ, 102, 109, 111, 120

Geography, F T, 143, 160, Univ, 49 51, 100, 101, 103, 104 108, 113, 114, 116

Geology, C A I, 174, 175, 238, I I, 133, 160, Univ, 73 5, 100, 103, 108 111, 120

Geophysics Univ, 104 120

German, I I, 135, 137, 139 145, 160, Univ, 48, 51 2, 100, 103, 104, 108, 110, 112 114, 114 116

Glass Technology, Univ, 120

Government, C I Diploma, 137, Univ, 102, 119

Gymnasia, I I, 33 135, 137, 139 141, 143

Grants, Courses qualifying for, 235 41, 244 7 *See also* Scholarships

Courses not automatically qualifying for, 241 3

Greek I I, 141, Univ 44 6, 52 3, 50, 103, 108, 110, 112, 113, 116

Literature, Univ, 100

Medieval, Univ, 100

Modern, Univ, 100

Gymnastics, I F, 154

Handicapped children, T F, 151, 163

Handicraft, I T, 132, 133, 134, 136, 138, 139, 140, 141, 142, 143, 144, 145, 147

Health Education, T F, 141, 154

Hebrew, Univ, 100, 109, 110, 111, 112, 116

Hindi, Univ, 116

Hispanic Studies, Univ, 112

History C A T, 174, Extra-Mural Board, 245, I I, 133, 137, 141, 143, 160, Univ, 53, 101, 102, 103, 101, 105, 106, 108, 111 112, 116

Ancient, Univ, 43, 100, 110, 115

Economic, Univ, 64, 103, 108, 109

Ecclesiastical Univ, 110

European, Univ, 111

Medical Univ, 117

Modern I I, 139, Univ, 65, 100 1 4, 111, 115 117

Scottish, Univ, 111, 112

Welsh Univ, 117

Honour Moderations (Oxford), 100

Horticulture, 213 14 C A I 174, I I, 135, 145, Univ, 94 5

Hospital Administration, C C, 223

Housecraft, I I, 133, 135, 137, 139, 145, 148 152 3, 164, 165

Household Management, I T, 153

Housing Management, C C, 223

Human Relations C A I, 174

Hungarian Language and Literature, Univ, 117

Icelandic, Univ, 110 *See also* Scandinavian Languages and Studies

Indonesian, Univ, 117

Industrial Psychology, *see* Psychology

Industrial Relations, Univ, 119

Industrial Sociology, *see* Sociology

Industry and Trade, Univ, 119

Insurance, C C, 223

International Relations, Univ., 103, 117

Italian, F I, 137, Univ, 54, 100, 109, 110, 112, 117

Japanese, Univ, 100, 117

Jurisprudence, Univ., 100

Opportunities After O-Level

- Land Economy, Univ., 101
 Land Use Studies, Univ., 117
 Language, English, Univ., 100, 102. *See also* English
 Language, Univ., 106, 115
 Medieval, Univ., 101
 Modern, C.A.T., 174, 175; C.T. Diploma, 197; Univ., 100, 101, 103
 Latin, T.T., 135, 141, 160; Univ., 44-6, 48, 54 5, 59-60, 100, 103, 104, 108, 110, 112, 113, 114, 117
 Literature, Univ., 100
 Latin American Studies, Univ., 109
 Law, C.A.T., 175; C.C., 222, 223; Univ., 62-3, 101, 109, 111, 112, 113, 114, 117
 International, Univ., 117
 Leather Science, Univ., 120
 Linguistics, C.A.T., 174; T.T., 139
 Literature, American, Univ., 106
 English, Univ., 100, 102, 103, 104, 106, 116
 European, Univ., 106
 Scottish, Univ., 112
 World, T.T., 137
 Literae Humaniores, Univ., 100
 Local Government, C.C., 223
 Logic, Univ., 117
 Long Term Colleges, 216

 Malay, Univ., 117
 Marathi, Univ., 117
 Marketing and Overseas Trade, C.T. Diploma, 197
 Materials Science, C.A.T., 174; Univ., 103, 105
 Technology, C.A.T., 174
 Mathematical Physics, Univ., 120
 Statistics, Univ., 120
 Mathematics, C.A.T., 174, 175, 238; C.T. Diploma, 197;
 National Extension College, 227; T.T., 132, 133, 134, 135, 136, 138, 139, 140, 142, 143, 144, 145, 160, 164; Univ., 55-6, 75-8, 100, 101, 103, 104, 105, 106, 108, 110, 112, 113, 114, 120, 121
 Applied, C.A.T., 175; T.T., 160; Univ., 113, 114, 119
 Modern, C.A.T., 174
 Pure, T.T., 160; Univ., 105, 113, 114
 Technological, C.A.T., 174
 Mechanical Sciences, Univ., 101
 Mechanics—Theoretical, Univ., 120
 Medical Records, C.C., 223
 Medicine, Univ., 97-8, 101, 109, 110, 111, 112, 113, 114. *See also individual hospitals in Index of Institutions*
 Medieval Studies, Univ., 114
 Metallurgy, C.A.T., 174; Univ., 91-2, 100, 109, 121 •
 Engineering, C.A.T., 174, 175
 Metalwork, 205; T.T., 141, 143, 145
 Meteorology, Univ., 121
 Microbiology, Univ., 78-9, 109, 121
 Applied, Univ., 108
 Military Studies, Univ., 117
 Mining, *see* Engineering, Mining
 Modelling (and Pottery), T.T., 139
 Molecular Science, Univ., 106
 Moral Sciences, Univ., 101
 Mountaineering, T.T., 154
 Movement, T.T., 133, 137, 139, 141
 Music, 207-9, 237; C.A.T., 174; C.C., 223; T.T., 133, 135, 137, 139, 141, 143, 155, 157-8, 160, 164; Diploma Course, 163; Univ., 57-8, 100, 101, 106, 109, 110, 111, 112, 113, 114, 117

Music—(cont.)

- Peripatetic, T.T., 135
- Natural History, T.T., 135
- Natural Philosophy, C.T. Diploma, 197; Univ., 112
- Natural Sciences, T.T., 139; Univ., 101, 115
- Nature Study, T.T., 137, 141, 145
- Needlework, T.T., 133, 135, 137, 139, 141, 143, 145, 153
- North American Studies, Univ., 117
- Norwegian, Univ., 112. *See also* Scandinavian Languages and Studies
- Numerical Analysis, Univ., 121
- Nutrition, 109, 120, 121
- Oceanography, Marine, Univ., 109, 121
- Oil Technology, Univ., 121
- Operational Research, C.A.T., 174; Univ., 121
- Ophthalmic Optics, C.A.T., 174, 175
- Oriental Languages and Studies, Univ., 58, 100, 101, 109
- Painting, 205, 206, 207. *See also* Art
- Pali, Univ., 117
- Pathology, Univ., 109, 121
- Persian, Univ., 100, 111, 117
- Pharmaceutical Technology, C.A.T., 174
- Pharmacology, Univ., 111, 121
- Applied, C.A.T., 175
- Pharmacy, C.A.T., 174, 175; Univ., 79–80, 109
- Applied, C.T. Diploma, 196
- Philosophy, C.A.T., 175; T.T., 141, 143; Univ., 47, 58–60, 78, 100, 103, 104, 105, 106, 108, 114, 115, 117
- Educational, T.T., 135

Photography Technology, C.T.

- Diploma, 197
- Physical Education, T.T., 133, 135, 137, 139, 141, 143, 145, 148, 153–5, 163, 164, 165; Univ., 117
- Physics, C.A.T., 174, 175; National Extension College, 227; T.T., 132, 134, 136, 138, 140, 142, 144, 145, 147, 160; Univ., 80–81, 100, 103, 104, 105, 107, 108, 109, 111, 112, 113, 114
- Applied, C.A.T., 174, 175; C.T. Diploma, 196, 197; Univ., 105
- Mathematical, C.A.T., 174; Univ., 111, 120
- Physiology, C.A.T., 175, 238; Univ., 100, 101, 109, 111
- Animal, Univ., 100
- Comparative, Univ., 102
- Polish, Univ., 112
- Language and Literature, Univ., 118
- Political Economy, Univ., 121
- Institutions, Univ., 103, 108
- Science, Univ., 109, 119
- Studies, Univ., 103, 119, 216
- Theory, Univ., 108
- Politics, C.A.T., 174; Univ., 64–5, 100, 104, 105, 119
- International, Univ., 104, 117
- Portuguese, Univ., 100, 109, 118
- Pottery, T.T., 139
- Production Management, C.A.T., 174
- Technology, C.A.T., 174
- Psychology, C.A.T., 174; T.T., 141, 160; Univ., 60, 82–4, 100, 103, 108, 109, 111, 114, 118, 121
- Educational, T.T., 135
- Industrial, C.A.T., 174; Univ., 119

Opportunities After O-Level

Psychology of Education, T.T.,
 143
Regional Studies, C.A.T., 174;
 T.T., 141 *
Religious Knowledge, C.C., 223
Roman Law, Univ., 110
Rumanian, Univ., 118
 Language and Literature,
 Univ., 118
Rural Science, see Science
Rural Studies, T.T., 135, 137, 139,
 141, 143
Russian, T.T., 137; **Univ.,** 60-61,
 100, 104, 109, 112, 118
 Regional Studies, Univ., 118
 Studies, T.T., 143; **Univ.,** 118
Salesmanship, C.C., 223
Sanderson's Training Scheme for
Designers, 204-5
'Sandwich' Courses, 173, 185,
238-41
Sanskrit, Univ., 100, 111, 118
Scandinavian Languages, Univ.,
 118
 Studies, Univ., 109, 118
Scholarships, 233-4, 244-7
Science, Applied, T.T., 153;
 Diploma courses, 162; Univ.,
 111, 113
 Behavioural, C.A.T., 174
 Biological, C.A.T., 174; **Univ.,**
 105, 108
 General, C.A.T., 174, 175; **C.C.,**
 223; T.T., 132, 133, 134,
 136, 137, 138, 139, 140, 141,
 142, 143, 144, 145, 147, 164;
 Univ., 67, 112, 113, 114
 History of, Univ., 109, 116
 Human, C.A.T., 174
 Mathematical, Univ., 111
 Philosophy of, Univ., 109
 Physical, C.A.T., 174; **T.T.,** 133,
 135, 137, 145

Rural, T.T., 133, 135, 137, 141,
 143, 145
Sculpture, 205, 206, 207; T.T.,
 139. *See also Art*
Secretaryship, C.C., 223
Serbo-Croat Language and Litera-
ture, Univ., 118
Shorthand and Typewriting, T.T.,
 133, 145
Silversmithing, 205, 206, 207. See
also Art
Sinhalese, Univ., 118
Slavonic and East European Stud-
ies, Univ., 109
Social Analysis, Univ., 119
 Science, C.A.T., 174, 175; **Univ.,**
 107, 112, 119, 215
 Studies, 216; C.A.T., 174, 175;
 T.T., 133, 139, 141, 143,
 145, 158; Univ., 103, 109,
 119
Sociological Subjects, Univ., 66
Sociology, C.A.T., 174; **C.T.**
 Diploma, 197; T.T., 133, 135,
 137, 139, 141; Univ., 102, 104,
 105, 109, 119
 Industrial, C.A.T., 174
Soil Science, Univ., 121
South East European Regional
Studies, Univ., 118
Spanish, T.T., 137, 141; **Univ.,**
 49, 61, 100, 109, 110, 112, 113,
 114, 118
Speech, T.T., 133, 135, 137, 139,
 141, 143, 145, 156-7, 164;
 Diploma Course, 163
Statistics, C.A.T., 174, 175; **C.C.,**
 223; **T.T.,** 160; **Univ.,** 109,
 112, 113, 119
 Mathematical, Univ., 120
Supplementary Courses, T.T., 146
Surgery, Univ., 109. *See also*
individual hospitals in Index of
Institutions

Index of Courses

- Surveying, C.C., 222**
Swedish, Univ., 118. *See also*
 Scandinavian Languages and
 Studies
Swimming, T.T., 154
Syriac, Univ., 110
- Tamil, Univ., 118**
Teachers' Certificates, 161-2
Teacher Training Courses, 123-68;
 Four Year Degree Courses,
 159, 160; Northern Ireland,
 164-5; Scotland, 159, 161-3
Teaching, C.C., 223
Technical Drawing, T.T., 133,
 141, 145
 Education, T.T., 135
Technology and Economics,
 C.A.T., 175
 and Humanities, C.A.T., 175
Telecommunications, C.C., 222
Television, C.C., 222; T.T., 135
Textile Design, C.A.T., 174; C.T.
 Diploma, 197
 Technology, C.A.T., 174; C.T.
 Diploma, 197
Textiles, T.T., 139; Univ., 109
 Printed and Woven, 205, 206
Theatre, Art of, 206; T.T., 137,
 139
Theological Studies, Univ., 61-2
Theology, 209-12; C.C., 223;
 T.T., 160; Univ., 100, 101,
 109, 114, 118
Town Planning, C.T. Diploma,
 197; Univ., 119
- Trade Unions, 216, 246**
Transport, Univ., 119
Tripes (Cambridge), 100-1
Turkish, Univ., 100, 111, 118
Typing, *see* Shorthand and Type-
 writing
- University Courses, English and**
 Welsh, 42-107, 115-22; Scot-
 tish and Northern Irish, 108-
 22
University Degree Courses, C.C.,
 219, 222, 223
Urdu, Univ., 118
- Veterinary Medicine, Univ., 111-**
 12
 Science, Univ., 96, 101
 Studies, Univ., 109
Vocational Courses in Art, 203
- Weaving, T.T., 139**
Weights and Measures Inspection,
 C.C., 223
Welfare, C.C., 223
Welsh, Univ., 62, 112, 118
Woodwork, 205; T.T., 141, 143,
 145
- Youth Leadership, T.T., 139, 143,**
 145, 155
 Work, 133, 139, 141, 143
- Zoology, 213; C.A.T., 175; Univ.,**
 84-6, 100, 108, 111, 114, 121
 Experimental, Univ., 102

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M. Goldsmith

The flesh and bones of life in a modern society demand more and more scientists, mathematicians, engineers, and technologists. Of these Britain is renownedly short, and the plan to double our output of qualified men in ten years is not going to be easy to complete.

Here is a book to engage the interests of young men and women in scientific and technological careers. In it the director of Science Information Service presents these careers in an attractive and original way by linking them with current technological developments. Detailing the kind of work done in various fields he explains what educational standards, qualifications, and training are required of entrants.

In a practical 'handbook' section the author gives a full list (with their addresses) of the universities, colleges, training establishments, professional associations, official bodies, and companies which operate training schemes, for the whole United Kingdom. He also provides information about grants and awards, together with a list of books, pamphlets, and films which can serve the would-be technologist.

A Penguin Reference Book

A Dictionary of Building

John S. Scott

A Dictionary of Building can claim to be the only inexpensive work of its kind in print. This dictionary will certainly have a wide appeal, since the terms included refer to the men, materials, and methods associated with building proper, traditional and modern, as opposed to what has come to be called 'construction' – particularly with steel and concrete. Both the professional builder and the 'do-it-himself' handyman can turn up here explanations and descriptions which are likely to be useful on the job. The entries, ranging from foundations and footings to the fixing of tiles on a roof, cover bricklaying, joinery, plastering, brazing, soldering, plumbing, shoring, light-weight concrete work, and the fixing of doors and windows, among explanations of a host of other processes, tools, and materials.

also available:

A DICTIONARY OF CIVIL ENGINEERING

A Penguin Handbook

Scootering

Jon Stevens

The development of the scooter as a means of cheap, rapid, personal transport has been one of the most marked features of the world's roads since the war.

This handbook, written by the editor of *Scooter World*, contains a wealth of useful information about scooters. For present owners there is an excellent and simple description of the mechanical parts together with expert instruction on maintenance and running. For intending owners there is a particularly valuable section on 'Choosing a Scooter'. So many different makes are on the market today that it is essential, in making a choice, to know which are soundly backed for service and spares, and which work out cheapest in the long run. In addition, the author, who has watched hundreds of scooter driving tests, gives a number of special hints for passing; there is also an interesting discussion of the social side of scootering.

Few men have made such an exhaustive study of scooters as Jon Stevens. He offers here a fascinating survey of design and performance in the scooter industry and also a comprehensive plain man's guide to all the practical angles.

A Penguin Handbook

Improve Your Athletics: 1

Peter Hildreth

The first volume of *Improve Your Athletics* offers a simple and modern guide to track events.

Peter Hildreth, of course, has represented Britain in a record number of 28 track internationals, including the Olympic Games of 1952, 1956, and 1960. Emphasizing what is really important to every class of runner and hurdler, he sets out in these pages modern techniques and tactics with a refreshing absence of far-fetched theory. His direct approach to performance is matched by advice on training which comes 'straight from the horse's mouth'. The sample schedules he includes were all obtained directly from leading athletes and holders of world records: the detail and authority of these make this book unique.

In keeping with the rest of the Penguin Sports Series, the text of this handbook has been integrated step by step with more than 60 carefully-selected action pictures, and it is true to say that, with the quick start and flying finish that Hildreth offers here, every athlete can be in with a chance.

Improve Your Athletics 2: by John Le Masurier, covers field events.

A Penguin Handbook

He and She

Kenneth C. Barnes

Kenneth Barnes has one outstanding advantage over the many writers of books on sex intended for young people: his tone is unique. Long experience as headmaster of a co-educational school has taught him not to lecture, dictate, patronize, or preach.

This handbook was specially designed for boys and young men. But, as the *British Medical Journal*, which found it 'one of the best of the many', said, it 'seems equally appropriate for girls and even for parents'. It answers simply and sympathetically the questions which interest or trouble young people as they grow. It would be hard to imagine a better introduction to the physiology or to the mental and moral aspects of sex.

'Mr Barnes has done the job admirably; he has assumed an intelligent and interested reader, and has burked none of the difficulties' – *Observer*

A modern dictionary for every Penguin reader

The Penguin English Dictionary

Containing more than 45,000 main entries, from the most colloquial words to the most formal, *The Penguin English Dictionary* has been specially prepared and written for Penguins by a team led by Professor G. N. Garmonsway, Professor of English in the University of London (King's College), and is the result of seven years' work.

The emphasis in this new dictionary is on current usage and the entries include many hundreds of post-war words and senses, in addition to the established vocabulary in English. Definitions are given in the most direct and simple form possible, and the dictionary introduces a new and immediately understandable system for pronunciation, which is likely to be of the greatest use to foreign students of English.

We believe *The Penguin English Dictionary* can justifiably claim to be an unrivalled catalogue of English words as they are used today in print and speech.